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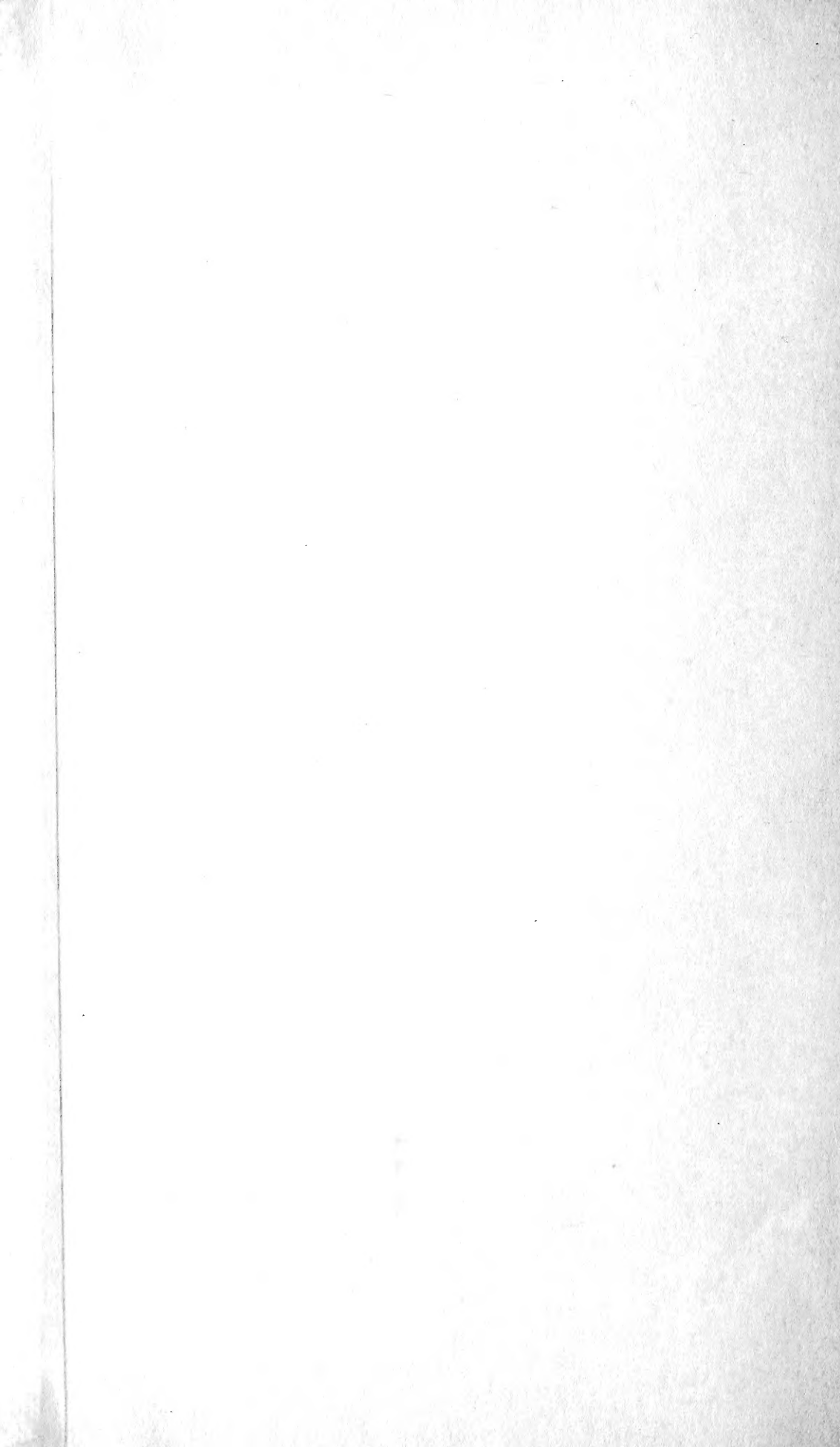
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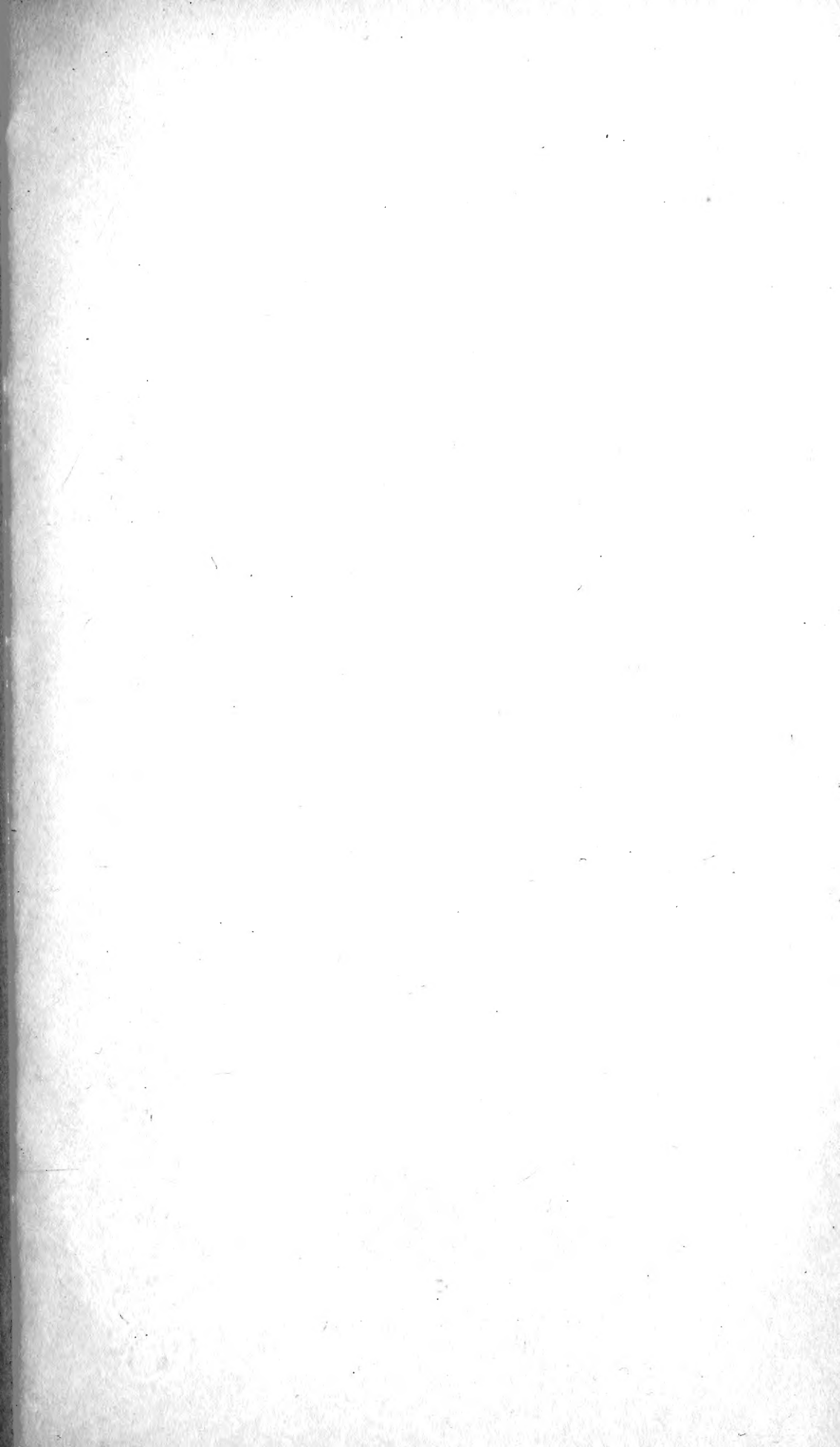
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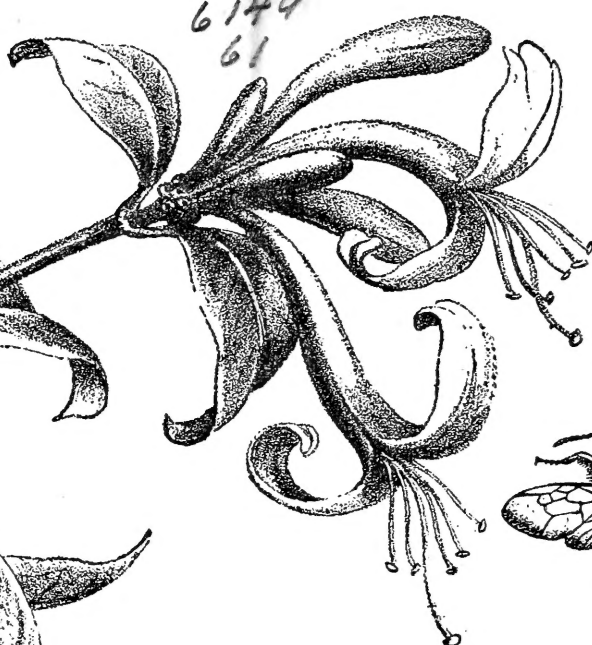








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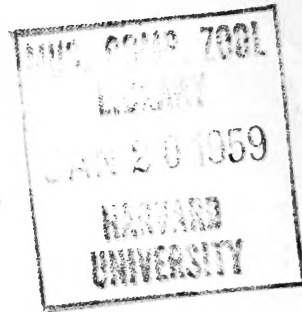
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# THE ENTOMOLOGIST'S RECORD

AND

## JOURNAL OF VARIATION



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1958

### Some Memories of S. G. Castle Russell

1866-1940

By Colonel S. H. KERSHAW, D.S.O.

Sydney George Castle Russell\* was the youngest of the eight sons of Major Charles James Russell, Royal Engineers. Major Russell, who had spent much of his Army service abroad, was the engineer appointed to survey the Aldershot area prior to the establishment of the military camp; for this he received a letter conveying the Queen's thanks for the good work he had done with his assistant, Lieut. H. H. Kitchener. Mr. A. W. Richards recalls (*Ent. Rec.*, 69; 114) that while engaged upon this work Major Russell's family occupied a corrugated iron bungalow which still (1957) stands at Ewshott, "On the edge of a miniature Switzerland with hills, valley ponds, runnels with marshy margins, oak woods, pine and heath"; beyond which stretched the man-made desert of the Long Valley.

Castle Russell was born at Redan Hill, Aldershot, on 15th August 1866. Of his early years little can be recovered; for he outlived most of his contemporaries; but it is known that he received his early schooling from an Army schoolmaster, who, incidentally, must have been an exceptionally good teacher of English, for C.R.'s letters to his friends are lucid, well expressed and exceptionally good reading. But while still a boy he went with his family to Ceylon, of which green island he retained happy memories, and it was here that he began to catch and collect butterflies. One incident which occurred during his stay in Colombo, however, was not quite so happy. He used to boat and fish in the Slave Lake, in which there is an island whereon the Dutch used to confine their prisoners. One evening a soldier, trying to get back to barracks before his pass expired, asked C.R. to row him across the lake. After they had gone a short distance the boat fouled a corpse. C.R. reported this when he reached home, but dragging operations failed to find anything; so C.R. came in for some chaff. Later, however, a gigantic crocodile was caught in that part of the lake—it was said to be one of the survivors of several which the Dutch had put into the lake with a view to discouraging the prisoners from attempting to escape. After that the chaffing stopped.

On their return to England C.R. and his family settled down again at Aldershot. Army tutors had coached him in Ceylon, and now (he

\*He always insisted that Castle Russell was not a hyphenated name and that he wrote the 'Castle' in full in his signature because it was his mother's maiden name (before her marriage to Major Russell she had been Jane Isabella Castle) and he was very fond and proud of her.

was fifteen) he was sent to Taplow Grammar School. Colonel V. A. Burkhardt, one of his oldest friends, has kindly sent me some of his recollections of C.R. at that time. He writes:—"On their return from Ceylon the Russell family lived in one of the old Crimean huts in the Wellington lines. He took up butterflies and began his British Collection, although he had collected in Ceylon; his other great interests were boxing, fishing and soldiers. Partly because he was a soldier's son, and partly because of his environment, the sight of soldiers in full dress drew C.R. irresistibly; whenever he was within reach of barracks he seldom failed to watch regiments going to or coming from the Garrison church. He knew every badge and facing. He told me that in 1907 (when he had turned 40) he had watched the 2nd Battalion of the Fifth Fusiliers troop the colour on St. George's Day; that the bands and drums of the recently disbanded 3rd and 4th Battalions had been posted to the 2nd Battalion and that for this ceremony the 2nd Battalion had 140 in the band and over 90 in the drums, led by two big drums, and 4 tenor and 14 side drums beating in line. As it happened I remembered this parade, for I was commanding the Escort to the Colours that day, and his description was absolutely accurate. It seems to have made a lasting impression on C.R., who also said that it was the only time he had seen a Rifle battalion passing him with its bugles playing, thrown out of step by the volume of sound. This too is exactly what happened".

C.R. liked Aldershot, not only because it was a good centre in pre-motor days for bicycling to collect in Pamber Forest, at Chiddingfold, in Savernake, the Forest of Dean and even the New Forest, but was also handy for pike fishing, either at Minley Manor or the fishing pool at Shepperton. He much preferred coarse fishing to fly, and relied upon his friend (now Brigadier) C. G. Lipscomb to bring him trout from Bourlay Reservoir, if quartered in England.

In 1887 Castle Russell joined the Phoenix Fire Office as a pupil under Musgrave Heaphy and within three years was appointed Assistant Electrical Engineer to that Company. During this time he had been studying electricity under Professor Ernest Wilson, M.I.M.E., at King's College, London, and in 1902 he succeeded Heaphy as Chief Electrical Engineer and Advisor to the Company. This appointment he held until his retirement in 1921.

While acting for the Phoenix Fire Office he also found time to embark on a consulting practice, and his reputation as an electrical engineer steadily increased. Among his clients were the Provost and Fellows of Eton College, to which school he was Consulting Engineer from 1906 to 1935, and Magdalen and All Souls colleges at Oxford, as well as some of the leading commercial houses in London. He was Advisor to the Corporation of London, the City of Westminster, and Hereford County Council; later to the University of Oxford, and drew up the code of rules for wiring at the Franco-British Exhibition in 1908. He also had the responsible task of designing and installing the whole of the electrical installation at Smithfield Market. Gradually he achieved such eminence in his profession that he was retained by the Home Office in connection with the public enquiry on the draft rules for the generating and use of electricity in factories. He had joined the Institution of Electrical Engineers as an Associate in 1894

and was elected a Member in 1905. He also found time to work on many committees and helped to found the Electrical and Insurance Surveyors Society.

Few men have acquired the virtue of patience in so supreme a degree. Often when he was being interviewed by local government boards and the like the plans which he described would meet with fierce criticism from some member or members of the board, possibly members who were out of humour because Castle Russell had been called in instead of their own nominee. "No matter how emphatically they denounced my plans", he once said to me, describing how he had carried through an important undertaking, "nor even how offensive were the *arrière pensées* of some of the remarks made, I never got ruffled in the slightest, nor ever attempted to interrupt, even when it was plain that they had got hold of the 'wrong end of the stick'. I just waited until the storm was over, and took them step by step over my plans. In the end there was always agreement with me and I got my way". This virtue of patience was patent in everything that he did. He could work fast and furious when the occasion demanded haste, and then having assured himself that everything was in train he waited patiently for the results that he knew were bound to come. And come they did. His friends often thought that he was 'lucky'; yet it was foresight not luck which aided and abetted him.

Perhaps one reason for his success in addition to his great ability, tact, and charm of manner\* was that he invariably put the interests of his clients before his own. For example, when a large firm wrote asking him to test their electrical installation as the directors thought it was getting out of date, C.R. wrote back:—"You *know* that I shall condemn it. Why not harden your hearts, scrap it and save my fee?" He was above all things reliable, trustworthy and of inflexible integrity.

It was this integrity combined with his natural likeableness which brought him the friendship of so many men in high places. At All Souls he very soon became *persona grata*, the Bursar putting rooms at his disposal whenever his work at that college (which occupied him for several months) required his personal attendance. On these occasions, he relates in a letter to one of his friends: "I was always invited to the College dinners, which I used to enjoy immensely. At that time Sir William Anson was Warden, Prof. Oman (an extremely tall man) the Librarian, and Grant Robertson, who afterwards became Chancellor at Birmingham. There were also many distinguished lawyers, Lord Birkenhead, Sir John Simon and Sir Thomas Raleigh. They were most awfully kind to me and made me feel quite at home. The Bodleian Library on one occasion presented me with an honorarium in the form of a copy of Curtis's *Entomology*, which at the time was very much more expensive than it is now".

Meeting so many acute brains he became a remarkably shrewd judge of character, and although he had what might almost be called a genius for friendship his friendship was not given to all and sundry. But in conversation he preferred to ignore men whom he disliked and would change the subject rather than speak unkindly or even critically of

\*A contemporary photograph shows him to have been an almost strikingly handsome young man, with slightly curly hair, the fashionable short whiskers, and a wavy moustache. It is a face that one instinctively warms to.

anyone. As the years went on he gradually gathered round him a body of intimate trusted friends who were in the habit of spending a few days with him every year or who lived within a short distance of his home and could be with him more often, and with these (as well as with others overseas) he kept up a regular correspondence. For he was an excellent letter-writer and whenever he could help a friend by drawing upon personal experience he would spare neither time nor pains, and would write at considerable length. And all his letters, whether long or short, were eagerly read; for he had that delightful gift of imparting his personality to his written words, so that he seemed to be in the very room while you were reading his letters. Here is an extract from one written when he was 86:—

"My dear friend . . . I am deeply sorry to learn that you have to give up field work; but I think this will not be a permanent condition and you will in due course resume your activity. Three or more years ago I was condemned to rest for most of the day owing to cardiac trouble. Now I have just returned from a week-end, and one day I walked the hilly downs in the hot sun from 2 to 7, and after dinner from 8 to 9.30, and on arrival at the hotel afterwards was not in the least tired . . . I am off this morning for another stay near Winchester until Friday next and on my return I will write you more fully . . . I have received quite a lot of letters expressing approval of the notes on the New Forest as a record of the old times . . . Affectionately yours, S. G. Castle Russell.

"P.S. Everybody is excessively kind to me in my old haunts at Winchester. I will tell you an episode that happened in my next letter".

It was typical of the man that he who gave so much of himself to his friends should be surprised when they tried to make some return. No wonder that so many regarded him with affection. Allan tells me that on one occasion Dr. Cockayne, who during his last illness was often racked with pain—which he always hid—and on these occasions sometimes spoke with acerbity of other entomologists, mentioned Castle Russell. Whereupon Allan, fearing that something bitter was about to be said, hastily interjected that he had a great affection for C.R. To his surprise, Cockayne stopped short and said, "Who hasn't?" There can have been few men who had so many devoted friends and so few enemies—if indeed he had any at all. He was a man who never forgot a kindness or harboured a grievance; as a result he never lost a friend and was always making new ones.

(To be continued)

## Notes on Coleoptera in the Midlands

By C. A. COLLINGWOOD

*Myrmecophiles*:—A few new county records have been accumulated since a previous paper (Collingwood 1957, *Ent. Rec.*, **69**: 9-14). A group of large nests of the wood ant, *Formica rufa* L., was visited for a second time at Moddershall, Staffs., in April, 1957. A number of beetles were taken from these nests and those additional to previous records include *Oxypoda haemorrhoea* Man., *Thiasophila angulata* Er., *Zyras humeralis* Gr., *Quedius brevis* Er., *Gyrophypnus myrmeco-*

*philus* Kies., *Acrotrichis montadoni* All., *Ptilium myrmecophilum* All., *Ptenidium formicetotum* Kr., *Dendrophilus pygmaeus* L., *Myrmetes piceus* Pyk. and *Monotoma angusticollis* Gyll.

A nest of *F. rufa* near Bucknell, Salop, was examined in October 1957 and the following beetles, presumed to be new records, were obtained:—*Quedius brevis*, *Gyrophypnus myrmecophilus*, *Dendrophilus pygmaeus* and *Monotoma angusticollis*. The local *Xantholinus atratus* Heer was taken near a *F. rufa* nest at Helpstone Heath, Northants, in July 1957. *Notothecta anceps* Er. and *Dinarda märkeli* Kies. were found in *F. rufa* nests near Staunton, W. Glos. *D. märkeli* has also been taken with *Formica lugubris* Zett. near Cromford, Derbys., in July 1957.

**Lincolnshire:**—The lists of Coleoptera by A. Thornley and W. Wallace in the Lincolnshire Naturalists' Union *Transactions*, 1907-1912, have been added to in recent years by Mr. E. C. Riggall. Most collecting, however, appears to have been done in the northern vice-county (v.c. 54) and the south has by comparison been somewhat neglected. A fair number of beetles have been taken in the last two seasons and some at least of those mentioned below are probably new records for South Lincolnshire (v.c. 53). *Attelabus nitens* Scop., *Curculio betulae* Steph., *Anoplus plantaris* Naes., *Micrelus ericae* Gyll. and *Coeliodes ruber* Mrsh. were taken in woods around Doddington in June 1956. *Strangalia maculata* Pod. and the uncommon *S. quadrifasciata* L. were also taken in the same locality. The former species was also taken together with *Alosterna tabacicolor* De G. on Hogweed near Corby in the same month. *Agapanthia villosa-viridescens* De G. was found near Aswarby also in June 1956. This species used to be regarded as rare but is widely distributed in the eastern counties and has been taken by E. C. Riggall in recent years in the neighbourhood of Wragby, N. Lincs. (Riggall, 1947, Lincs. Nat. Un. Trans.). The above Cerambycidae have been recorded for all surrounding vice-counties (Kaufmann R.R.U., 1947, *Ent. mon. Mag.*, **84**: 66-85) and these captures now fill the apparent gap in their distribution.

Other presumed new vice-county records include *Luperus longicornis* F. at Doddington, *Crepidodera transversa* Mrsh. and *Galerucella nymphaeae* L. near Corby, *Haltica lythri* Aub. on *Epilobium* at Uffington, *Rhinosimus planirostris* F. under maple bark at Norton Disney, *Necrobia rufipes* De G. on a roadside heap of spent molasses near Leasingham and *Cercyon terminatus* Man. near Bourne. *Rhyncholus lignarius* Marsh. and *Cerylon ferrugineum* Steph. in old trees in November 1956 near Kettlethorpe, N. Lincs., *Bruchus villosa* F. swept near Sleaford, *Hermaphyscus mercurialis* F. on Dog's Mercury at Holywell, *Donacia thalassina* Germ. near Corby and *Zaccladius exiguus* Ol. near Bourne in July 1956 are probably new records for Lincolnshire.

**Worcestershire:**—The following are very local according to Joy (1932, *A Practical Handbook of British Beetles*) and some may be new county records. *Rhinomacer attelboides* Fab. was swept among firs at Madresfield in May 1951; *Gymnetron antirrhini* Pk. was taken off Toadflax in the Wyre forest in July 1957. *Magdalis carbonaria* L. occurred on birch near Stourport, June, 1953. *M. armigera* Geoff. was swept off Burdock at Ashton under Hill, June 1953. Here, *M. barbicornis* Latr. has been taken on apple, and the two commoner

species *M. ruficornis* L. and *M. cerasi* L. have occurred on apple and plum trees respectively. *Chalcoides nitidulus* L. was taken from poplar at Pershore in June 1948. *Brachinus crepitans* L. at Eldersfield in October 1954 is a new county record according to B. P. Moore (1957, *The British Carabidae* (Coleoptera), Pt. II, *Ent. Gaz.*, 8: 171-81).

*Radnorshire*:—According to Moore's county distribution table *op. cit.* this county would appear to have been sadly neglected by collectors as only 6 species of Carabidae have been recorded there. The following Carabidae were taken in October 1957 near Presteigne:—*Calthus melanocephalus* L., *Leistus fulvibarbis* Dej., *Bembidion quadrimaculatum* L. and *Dromius meridionalis* Dej.

*Derbyshire*:—*Otiorrhynchus rugostriatus* Goez. has occurred in some numbers in my garden at Melbourne during the past two seasons under clumps of Saxifrage. *Barypithes pellucidus* Boh. has also been found there. This weevil seems to be by no means uncommon in dry woodland as at Helpstone, Northants, and many places in Worcestershire, including a Raspberry plantation at Leighsinton. *Biphylum lunatus* F. and *Litargus connexus* Geof. were found in abundance under bark of an ash stump at Melbourne in April 1957.

*Nottinghamshire*:—*Dacne bipustulata* Thunb. in Wigsley wood, October 1956, would appear to be a new record from J. W. Carr (1916, *The Invertebrate Fauna of Nottinghamshire*).

Shardlow Hall, Shardlow, Derby. Nov. 1957.

## An Entomologist in Yugoslavia

By RALPH L. COE

(Continued from page 274)

My remaining days on the island of Korčula passed pleasantly. The sun blazed down for the most part, and a satisfactory assortment of Diptera fell to my net, although the waterless character of the countryside somewhat restricted the number of species to be found. One glorious morning was spent in collecting Tabanidae on a steep rock-strewn hillside. Amid a wild tangle of shrubs, I wielded my net ceaselessly as the vicious blood-suckers flew in from all directions. Self-preservation spurred my efforts, and by mid-day a large pocket-box was filled with the quarry. As I sat eating my sandwiches, I could see below me in the valley the stone-bordered olive groves of the peasants, on either side of the road that traverses the island. Under the scattered trees could be spied rare patches of luscious green grass.

I decided to brave the probable annoyance of the cultivators and sweep some of this vegetation after lunch. Descending the hill-side, I clambered over the low stone-wall of a deserted grove and quickly swept through a likely patch of grasses. Then squatting down, strategically hidden from sight, I sucked into my aspirator the seething mass of small flies in the net. This satisfactory bag included many species of the grass-breeding Chloropidae.

Variety being the spice of a dipterist's life, the next day I sought a change of terrain and while wandering on another hill slope discovered a solitary olive grove where I collected happily until noon. Then a torrential rain-storm broke. Seeking shelter, I came upon a little hut, the door secured by a twisted piece of wire. Acting on the principle of

any port in a storm I undid the wire and went inside. The place was empty except for a half-barrel containing water, draped with an old blanket, and a few planks of wood on the earthen floor. The tiny window produced a score or so of small Diptera, and I was just congratulating myself on finding such a satisfactory haven when I heard voices coming nearer and nearer. Hastily folding my net, I composed myself and sat down in an attitude of rest on one of the planks. In came an old peasant and his wife. After the initial shock of finding a stranger in their little retreat, they philosophically accepted my presence.

The woman went over to the half-barrel and started scrubbing the blanket with a peculiar kind of large stone, while the old man came and sat beside me on the plank. Taking the cigarette that I offered, he looked me over gravely, evidently waiting for me to speak. Pointing to myself, I said, "Engleski!" To my pleased surprise, the old man said very slowly, "Good! Good!" Further words in English came haltingly. Over forty years earlier he had returned from a spell as emigrant in Australia, and had not spoken English for over ten years. Gradually the words came easier to him, and he invited me to come and drink wine at his cottage in the valley. Leaving his wife at her labour, we set off in the now drizzling rain. Reaching the rose-covered threshold of his little home, I followed him into the sparsely furnished living room. He bade me sit on a wooden form while he went about the now familiar ritual of pouring out the red Dalmatian wine. As we sipped the beverage he told me of his experiences when first the Italians and then the Germans had invaded the island. The Italians had turned his wife and himself out of their cottage, and as a result of this and further ill-treatment his wife had died. The Germans on the contrary had behaved humanely. After the war he had remarried. We emptied a flask of wine, and he accepted with much pleasure a bottle of beer from my haversack. As he rolled a cigarette, I noticed that the paper had no gum, and promised to send him some good English paper on my return home. In due course a supply was posted to him, and his little note of thanks testified to its safe arrival.

That evening as I sat at supper on the hotel verandah overlooking the bay, a spectacular storm broke. Sheet and forked lightning flashed simultaneously from all parts of the lofty mountains on the mainland, lighting up their summits with an amazing clarity of detail. The brief interludes of utter darkness made the display even more thrilling. As I finished eating, the waiter came over and sat down at my table, offering me a cigarette. Servility is quite unknown in most parts of Yugoslavia. Whoever is serving is always likely to pass a spare moment by joining you at the table for a chat, without offence being intended or taken.

I had just settled down in bed that night when a curious sustained scratching noise made me turn on the light. There on my bedside table a scorpion on a meal bent had just reached a box of newly layered material, left uncovered to hasten drying. Within a few minutes this unwelcome nocturnal visitor had swelled the ranks of my pinned specimens.

The next morning I left the island of Korčula by sea for Dubrovnik. Crowds were again at the quay-side to watch the exciting spectacle of the arrival and departure of the daily boat. Towards evening, after a delight-

ful cruise in bright sunshine, we berthed at Gruz, some three or four miles from Dubrovnik itself. I decided to stay the night at the Lapad Hotel on the peninsula of that name. Having booked a room and deposited my luggage, I boarded one of the trams that ply between Lapad and Dubrovnik. It was so jammed with passengers that I had to cling precariously to a hand-rail half in and half out of the swaying vehicle. Alighting at the terminus by the Pile Gate which guards the old walled part of the city, I called at the Putnik office and enquired the time of the first morning bus for Cetinje, the next objective on my journey southward. The English-speaking official informed me that a bus would leave the Pile Gate at 6.30 a.m. Back at Lapad, I booked a taxi for the following morning.

At 6 a.m. the driver deposited me complete with luggage at the departing point, but the bus failed to turn up! Irately confronting the official as soon as Putnik's office opened, I was told that the bus left on this occasion by a side-turning and I would have to wait in the city until the following morning. As the taxi from Lapad had cost me 500 dinars—about eleven shillings in English money—I insisted that he find me accommodation near the departing point of the bus. The harassed man gave me an address just inside the Pile Gate. The house was in a very narrow alley, along which one progressed by a steadily rising series of steep steps. Knocking at the door, I was admitted to my quarters by a lady who spoke only Serb, so out came the dictionary and we discussed terms with its aid. Dumping a pile of blankets on the bed, she inclined her head and placed her hand on her cheek in an attitude of repose, then pulled down the blind. I shook my head vigorously, rightly assuming her dumbshow to be meant to ascertain whether I wished to repair to bed immediately.

Leaving the house, I wandered through the lovely old city with its many buildings of historical interest and crowds of pedestrians, many wearing the picturesque Dalmatian costumes. No wheeled traffic is permitted inside the Pile Gate, with the result that a stroll within its precincts is extremely pleasant.

Arriving at the docks, my attention was immediately drawn to a handsome black and white steamer of imposing proportions lying some distance off-shore. Several motor-launches were plying between the ship and the dock-side, disembarking a large number of men and women. I discovered that this vessel, the "Caronia", manned by a British crew, was taking a party of over six hundred Americans on a world cruise.

Chatting with some of them, I learned that they had recently toured Venice, crossed the Adriatic and were now about to do a concentrated day tour of Dubrovnik before continuing their voyage that evening. The brochure detailing the "Shore Programme for the s/s Caronia at Dubrovnik, May 31st, 1955" emphasised that "each group will have a separate guide from the moment of disembarking to the moment of leaving the dock for the ship".

This massed onslaught certainly gave a fillip to business in the old city that day. I saw one guide forming his charges into a "crocodile" outside a little hat shop. The tourists filed in and on emerging each was wearing or carrying a floppy straw sun-bonnet of local pattern. In the afternoon a performance of national Yugoslav dancing was especially put on for the American visitors at an old-world theatre. A charming lady from Holly-



wood and her escort with whom I was talking saw no reason why a solitary Englishman should not share their entertainment, so I duly tagged on to my new-found friends and we were soon seated in a capacious box overlooking the stage. We were treated to a wonderful display by Jugoslavs of all ages, even tiny tots of five or six gravely performing intricate steps in national costume.

Towards evening as I watched the great party of tourists being taken back in relays by motor-launch to the parent ship some little Yugoslav children came to me with their school-books, eager to display their knowledge of English. The readiness with which they pick up our language makes it certain that the rising generation at Dubrovnik will be a great boon to English tourists. Community of language must ease the road to understanding and friendship.

Early next morning I bade farewell to fascinating Dubrovnik, and boarded the crowded bus for Cetinje. We soon reached the village of Čilipi and proceeded along the lovely and fertile valley of Konavli, below mountains dotted on their lower slopes with cypresses and other conifers. After a steady climb the bus descended by the twisting road to the great Bay of Kotor, where a brief stop was made at the attractive coastal resort of Hercegnovi. Rich with palms and bougainvillea, this little town has a sub-tropical character. All too soon we were back in our seats, and as we continued round the bay the 6000 feet high mountain of Lovcen came into view. It seemed impossible that our route could lie over its bare and apparently trackless slopes, yet winding in countless serpentine almost to the summit is one of the most brilliantly-conceived and breath-taking roads in the world.

Soon we were climbing higher and higher in exciting spirals. As the bus negotiated each of the twenty or more hairpin bends the back wheels of the vehicle were only a few feet from the almost sheer drop to the abyss below.

It is recorded that when Bernard Shaw was driven along this route his nerves were shaken to such an extent that he finished the journey wan and shrinking with terror! Clinging as it does to the mountain-side, the road leaves no room for any paths. The few pedestrians that we encountered sometimes had literally to press themselves against the rock-face as the bus went by. One intrepid peasant stepped calmly to the very edge of the precipice, and my memory is still vivid of him standing in a cloud of dust with certain death awaiting a false step backwards. Despite the great skill of our driver, I did not relish the possibility of meeting a vehicle going the opposite way. Luckily, no such emergency arose. I had experienced enough thrills for one day by the time we breasted the summit of the pass. At this point there was a truly magnificent view of the now tiny bay with its fringe of mountains stretching out to the blue Adriatic.

Carrying on downhill and through a fertile valley we came into the typical rock-strewn barren countryside of Montenegro. At midday we reached Cetinje, the tiny town that over long centuries was the proud capital of the present republic.

The bus halted in front of a little hotel rejoicing in the name of the "Grand", and the only one in the place. After we had enjoyed a nice lunch, I found that all my fellow-passengers had only come for the renowned thrills of the journey, and were returning to Dubrovnik by the

same bus that afternoon. When I tried to book a room for a single night at the hotel the proprietor (whose only foreign language was bad French) seemed reluctant to grant me this boon, hinting mysteriously at the imminent arrival of some important guests. However, by sheer persistence I wore him down and was shown up to a room on the top floor. The sunny skies of the morning having given way to steady rain and chilly conditions I spent the afternoon in looking over my boxes of specimens for any damage sustained on the mountain journey. Luckily, all was well.

Towards dusk the skies cleared somewhat, and I went out to the hotel entrance for a breather. The quietness of the street that stretched out in front was suddenly shattered by a roar of motor engines, and a small fleet of high-powered cars and motor-cycles came tearing up to the hotel. From the cars emerged a number of Yugoslav Army, Navy and Air Force officers, and from the motor-cycles jumped their outriders. I had arrived on a day of military manoeuvres, and realised with some embarrassment that this assembly of fighting men were to be my fellow-guests for the night. Soon the entire population had lined up outside the hotel to gaze at the magnificent cars, evidently a rare and exciting spectacle for this isolated community. As the officers' cases were unloaded, I discreetly went back into the hotel to my bedroom, determined to keep this precious possession at all costs. For some time the place was a babel of voices as the new arrivals sorted themselves out into the various rooms. Obviously there was a distinct shortage of accommodation. At last to my relief the hubbub died down, and the crisis was over.

It seemed a good idea to take a walk down town, and I stepped out into the dimly-lit street. Hearing voices from a small café, I went in and found myself among a cheery crowd of men seated drinking beer at plain bare-topped tables. I had scarcely settled down in a vacant chair with a welcome glass of "pivo" (beer) when I made acquaintance with the first of the mysterious characters who from time to time in these remote places started a conversation that sooner or later embraced politics.

A tall man, soberly-clad and wearing a smart trilby, came over to me as I drained my glass and in French invited me to join him in a beer. Anxious to be friendly, I accepted, and bringing two drinks to the table he sat down by me. He obviously knew already that I was English, and after a few general remarks he asked me whether I thought Eden or Attlee would win the then pending General Election. I shrugged my shoulders with a smile, and he then asked me bluntly whether in my opinion Eden was "bon" or Attlee. Evading the issue, I said, "Avant la guerre Eden et Attlee"—here I placed our glasses wide apart on the table. Then I said, "Après la guerre"—and put the glasses closer together. He seemed quite pleased at my demonstration, and did not pursue the topic further. When I turned out shortly after dawn the next morning to catch a bus for Pec, the next point on my journey, he was waiting at the stop for me. We shook hands, and I waved him good-bye as the vehicle set off.

Looking round at my fellow-passengers, I saw that the tourist element was no longer with me. Instead, the seats were occupied by typical men and women peasants, in all manner of costume, both drab and colourful. A couple of women had argued loud and long with the conductor-driver before he allowed them to deposit on the long back seat two out-size

crates of chickens. In front of me sat a very old woman, led on to the bus by relatives. To my considerable discomfort she was spitting loudly throughout the journey into an empty apricot tin tied round her neck with a piece of string. A youth in a front seat strummed on the strings of an ancient guitar-like instrument, singing softly to the sweet melancholy tune. One by one the passengers took up the refrain, until everyone but myself had joined in.

Soon we had climbed out of the valley of Cetinje and I was experiencing on a minor scale the thrills of the previous day as the vehicle clung like a fly to the winding mountain-side road. After a long climb, we descended to the picturesque village of Rijeka Crnojevica with its quaint old houses of various shades of colour, each with a timber balcony and outside stairs twisting to the roof. Not far off could be seen the northern tip of the great lake of Scutari, across which runs part of the frontier between Jugoslavia and Albania.

(To be continued)

## Large Coppers in Picardy

By AN OLD MOTH-HUNTER

While reading Charles Oberthür's *Études* for elucidation of the Copper synonym complex some years ago I came across, and made notes from, his account of the search for the Picardy race of *Lycaena dispar*, which, said he, was as fine as the English *dispar* but could be distinguished by the undersides of the hindwings being greyer and not so bluish as in the English race. It occurred in the marshes of the Somme near Saint Quentin and from that locality, said Oberthür, "I received years ago some very fine specimens taken by Gronier, a collector who used to live at Saint Quentin". Wishing to find out if the species still occurred in Picardy, Oberthür sent his collector, Harold Powell, to Saint Quentin in June 1909 to search for it. The search was unsuccessful and there is no doubt that by the early years of this present century *dispar* was as extinct in the marshes round about Saint Quentin as it had been in England for fifty years. "The species still occurs in the neighbourhood of Uriage (Isère)", wrote Oberthür, "where I caught it in June 1895; also in some localities in Gironde, Aube, Alsace, Germany, Italy and Siberia". But in 1923 Lhomme was of opinion that only the forms *rutilus* and *burdigalensis* then existed in France.

Powell's diary of this search for *dispar* is interesting and there is a striking similarity between the terrain he describes and Wicken Fen. The big *Rumex hydrolapathum* was there in plenty, but no *dispar* appeared. On the second day of his visit (June 11th) to the marshes Powell called on Henri Gronier, son of the collector who had supplied Oberthür and had died two years before. Henri related that his father used to take *dispar* in Rouvroy marsh, though it was never abundant there and varied in numbers from year to year, and he seemed quite certain that the insect was then extinct.

"The butterfly", said he, "had a strong flight and flew in both hot and stormy weather. It used to settle on the big white marsh flowers, and as soon as it settled it closed its wings. It was on the wing for only about a fortnight, and soon became worn". From this

description one may conclude that Henri Gronier had actually seen and observed *dispar*. He told Powell that his father had once caught one on 31st May, but that that date was exceptional. It was four years since one had been seen at Rouvroy. Gronier père used to employ a man to walk about in the marsh every day for a month, every year, and signal whenever he saw a Copper butterfly; and for two years before the old man died no signal had come from the marsh. Henri himself had searched for the insect each year since then, without success.

Asked why he thought it had become extinct, Gronier said that in his opinion it was owing to the work which had been going on in the marsh—the cultivation of the soil, the regular scything, and so on. Formerly no part of the marsh was cultivated and the scything was only occasional and here and there. "The parts which are now preserved for shooting", wrote Powell in his report to Oberthür, "have been in the possession of the present owner for only two years, and *dispar* became extinct before then; otherwise, with protection, the butterfly might have been able to hold its own".

Powell had learnt that there were other marshes along the Somme where *dispar* used formerly to be taken; but according to Gronier it was unlikely that the butterfly still existed in any of them since these marshes had been subjected to the same treatment as at Rouvroy. Later he was to find that Gronier was correct.

Before leaving Saint Quentin Powell called on a man who had been mentioned to him as an entomologist, and found that he had "a very nice collection of Lepidoptera, in good condition. He has only three *Chrysophanus dispar* and these are not from Saint Quentin but are German *rutilus*. He has never taken *dispar* here though he has searched for it several times". This lepidopterist gave Powell the address of a widow, Madame Desprez, whose husband had collected *dispar* forty or fifty years previously. "Mme. Desprez showed me some glazed cases hanging on the wall in her sittingroom and these contained about forty Saint Quentin *dispar*, among some exotics. The copper colour of these *dispar* was well preserved, but the specimens themselves have not been very well set and most of them have lost their antennae. All were set to show the uppersides, and as Mme. Desprez would not allow me to open the cases I was unable to examine the undersides. In size they did not seem to me to be very large, scarcely larger than the German *rutilus*. Mons. Desprez was a painter. He collected many *dispar* in Rouvroy marsh, on the right of the road going towards Rouvroy after crossing the canal. He caught some also in a marsh on the other side of Saint Quentin; but that marsh has now been drained and built over. Mme. Desprez would not part with her *dispar*: she keeps them in memory of her husband".

Leaving Saint Quentin—after hunting the marshes there on foot and in a boat—Powell spent three weeks searching the other marshes round about, both on Somme and Aisne; but never a *dispar* did he see alive. "I . . . came across nothing like *dispar* or *rutilus*", he wrote to Tutt later in the year, "although the great dock was common enough in some places. The weather was very bad nearly all the time . . . M. Oberthür thinks that it is as extinct in that part of France as it is in England. Before asserting that, I should like to

have another try, for there are many marshes which I had not the time to explore. It does still occur in the Aube, I believe . . ." In this he was right, for *dispar* continued to inhabit the marshes on the upper Seine until at least 1918.

The history of these Somme *dispar* seems to have been somewhat similar to that of our fenland race. Just as at one time the insect ranged throughout the extensive marshes of Somme and Aisne, so in England it overran the whole of the Fenland. When we hear of it last in Picardy it occurred only in a single marsh, at Rouvroy; in England the marsh round Whittlesea mere was its last habitat in the fens. It is an over-simplification (of which I myself have been guilty) to suggest that excessive demands by lepidopterists brought about the extinction of either the Picardy or the English race. Yet there is small doubt that when at last the populations of both races had been reduced by natural causes to below what I have elsewhere called 'survival density', the harrying by collectors, perhaps in three of its stages, must needs have accelerated extinction. Rowland-Brown, writing in 1917, tells that after this Picardy locality for *dispar* was made known, "St. Quentin was thenceforward visited by Parisian and other foreign collectors". There can have been only one reason why a painter, who does not seem to have been an entomologist, should have amassed forty specimens.

And indeed further testimony is forthcoming that *dispar* was persecuted in France even as it was latterly in England. Writing in Léon Lhomme's magazine in 1923 a collector stated that he caught "about 150 specimens" in a marsh near Troyes between June and August 1918. With its population density at a low ebb such a reduction of its numbers in a single locality in one season cannot have been other than deleterious to the species. Lhomme at least was satisfied that it was this wholesale destruction in Aube that had resulted in the insect's extinction.

The cynic may reflect on so striking an example of human perversity, whereby those whose last wish in the world was to see the extinction of a thing that was a source of income to them should be the very ones to bring this unhappy event to pass. One sometimes hears of the "rapacity" of collectors: it is a question whether for "rapacity" we should not write "the weakness of intellect which invariably accompanies greed".

Some of the Picardy *dispar* found their way to England after their death; indeed I have sometimes wondered whether the extermination of the Saint Quentin race was not hastened by the demand for *dispar* by English collectors rather than French ones. For there cannot have been in France anything approaching the demand for this butterfly which there was in England at the time when the Saint Quentin race was drawing to its end. The Picardy race continued to exist until half a century ago and until quite recently it was only in England that the price on *dispar*'s head was a high one. The last of our *dispar*, so far as I am aware, was caught in the Somersetshire marshes in 1857 and the demand for specimens, so far from becoming extinct at the same time, increased until the present valuation was reached. Thus the temptation to unscrupulous persons to import French *dispar* purchased for shillings, set them on English pins in the

English style and provide them with "Whittlesea Mere" labels, then sell them for pounds, must have proved at times irresistible. For until little more than forty years ago no one seems to have been able to distinguish between the English and the Picardy races with any degree of certainty. Indeed if one may judge by Plate 43 of Oberthür's *Etudes*, Fasc. IV, it would be difficult even today for an expert to pronounce, beyond doubt, whether an isolated male *dispar* was of the English race or the Saint Quentin race by an examination of either the upper or the under side. Only if a series of each race was beneath one's eyes would it be possible for the average butterfly collector to distinguish the one from the other with certainty. The differences in both upper and under sides of the females are slightly, but only slightly, more apparent; but here too perhaps even the expert would prefer to examine the insects in series. Nowadays no one would wittingly send Picardy *dispar*, caught in the second half of the nineteenth century and provided with English labels, to a London auction-room to be sold as genuine Old English specimens; but forty years ago such *coquinerie* could have passed unsuspected. Are there Saint Quentin *dispar* in English cabinets today simulating English autochthons? If so, Dame Fortune has turned her wheel full cycle, for their monetary value must now be approaching that of the Old English race!

Some years ago a message was sent to me asking if I would go and inspect some Large Coppers: they were in a cabinet that had recently been bought at an old curiosity shop in a small town. The purchaser had his doubts about them, but only because it seemed incredible that in these sophisticated days anybody would be so foolish as to sell six or eight Large Coppers in fine condition in a small ten- or twelve-drawer cabinet for a few shillings. They were set on gilt pins, with the forewings rather more advanced than was the custom in early Victorian days, and certainly they looked like English *dispar*; but as no genuine English *dispar* was available for comparison I was unable to express any opinion, though their brilliant freshness did not suggest any great age. The only thing to do was to submit them to South Kensington. This was done and they were pronounced to be Frenchmen. So I have been wondering ever since . . .

## Winter Work for the Coleopterist

By A. A. ALLEN, B.Sc., A.R.C.S.

For the purpose of these notes, winter is taken as extending from about the beginning of November to that of March; but there is no time at which any of the collecting methods referred to may not be used with advantage. During the above period, some coleopterists will doubtless find their leisure sufficiently occupied with indoor work on the past season's catch. For the more energetic, however, with time to spare, and especially those so fortunate as to live in the country or near good collecting-grounds, it is well to remember that in winter the majority of smaller beetles besides a number of larger ones are obtainable in the adult state; and that a certain number are chiefly, and a few only, to be found then. At the same time many beetle larvae will be encountered.

Naturally, in our climate, the quantity of outdoor work that can

profitably be done in winter will as a rule be strictly limited, but in such exceptionally mild and dry winters as 1937-8 or 1956-7 collecting can, if desired, be carried on through the whole period. Generally speaking, it is a good plan to concentrate more on one's immediate surroundings and nearby localities at this time of year when, with the short hours of daylight, excursions far afield are seldom a paying proposition.

*Rough-sieving or 'bagging'.* The essential equipment for winter field-work is of the simplest: a waterproof sheet, two sieves of larger and smaller mesh (collapsible or folding ones are most conveniently portable, but have not been on the market since the war), a stout digging implement, and several linen or cloth bags. These need not be very deep—say between 12 and 18 inches—and the mouth should be of such a diameter as to fit closely round the base of the larger-meshed sieve, and capable of being tied up so as to leave no means of egress for small fry. The bags, which may be made of anything durable and of porous texture, must be periodically inspected for possible holes or tears. Coarse siftings may be rapidly collected into them for examination at home under more favourable conditions (if necessary after a slight degree of drying—this *must not* be overdone—to get rid of surplus moisture only, and passing through the finer sieve) in a warm room where more or less torpid insects will be induced to move; instead of spending precious hours in the field poring over the collecting-sheet and catching little, possibly, but cold. With a supply of such bags, the finer sieve may usually be omitted from the winter field-gear. The one drawback to this mode of collecting is that it is seldom possible to know in what precise spot a given insect was actually taken, unless the siftings it came out of were gathered over a small area only. In any case, it is very important not to get siftings from different materials or different localities confused, and when there could be any doubt the bags should be marked in some way.

Materials suitable for this treatment include all kinds of vegetable refuse and debris that is not too dry—stack, reed, and sedge litter, dead leaves especially near water, compost and grass mowings, seaweed and other rotting herbage, sweepings of flour mills and granaries, straw and manure litter in stables, and nest materials (birds', moles' and other mammals—ants' nests require a different technique and are better worked in spring or autumn); also damp moss (but not the very close short-growing kinds) especially on chalky ground, in swamps and on pond- and river-banks, and in woods. Some of these habitats, such as moss, are richer in beetles in winter than summer as they are apt then to contain not only their regular fauna (e.g. many small Staphylinids and Clavicorns) but also hibernating members of other groups (predators, plant feeders, etc.).

Rotten wood is usually best examined *in situ*, and may often be broken up over the sheet; fungi containing beetles or their larvae should be taken whole as a rule. In every case circumstances will dictate the best course to follow. A few handfuls of the material in question spread out on the sheet will give some idea whether it is likely to be worth taking a bagful of siftings.

*Flood rubbish.* The detritus of rivers in flood is often exceedingly rich in beetles, both as to individuals and species, at any time of year;



but as full instructions for dealing with it are to be found in almost any coleopterists' manual, little need be said here. Since it provides a great mass of material, there is no better time to take advantage of it than the onset of winter. During that season, moreover, beetles are much slower to leave the deposited rubbish than in summer, so that even weeks after the flood the lower layers, provided enough moisture remains, may still be worth attention. It pays to know beforehand where the refuse tends to accumulate—e.g., about the upstream sides of bridges—and to take it as nearly as possible at the height of the flood. A sack or sacks will be required, and the coarser matter roughly sieved off or otherwise excluded. After sufficient draining, it is scrutinized in great detail (a little at a time) in a large dish or bowl whose sides must be fairly steep and smooth but not too high. It should be noted that the presence of a certain insect in flood refuse, especially if a solitary individual, is no guarantee of local origin; it may have been swept down from many miles upstream. In fact, there can be no doubt that river floods are one of the natural agencies of dispersal.

*Grass tussocks and tufts.* These can be highly productive, chiefly in winter and early spring; rare small Staphylinids, etc., hard to find by other means, have thus been taken—also good species of Pselaphids, Scydmaenids and many other Clavicorns, Carabids and many more. Isolated tufts at the edges of fields or woods, or in moist and marshy places, should be chosen, cut cleanly through the base at least an inch below ground level with a small meat-saw or hacksaw (preferably with the handle not in the plane of the blade, making the operation far easier) and shaken gently in an inverted position over the sheet; this being repeated as long as it yields results, after which smart blows will dislodge the remaining occupants or the tuft can be pulled to pieces.

*Subcortical hibernators.* Stripping bark from trunks, logs, boughs and stumps will disclose various overwintering beetles, besides the ordinary run of subcortical species mostly occurring throughout the year. Willows and other trees growing near water often yield many of the former class—some of the marsh-living Carabids (such as *Agonum* spp.) at times hibernating gregariously under the loose bark, as do certain Coccinellids, *Endomychus*, a number of Chrysomelids as *Phyllodecta* and *Chalcoides* (Salicaceae); weevils, particularly Notarinae and their allies, *Dorytomus* (Salicaceae), *Anthonomus* (Rosaceae), etc. Tree feeders that winter under bark select for the purpose any suitable trees at hand, not necessarily those on which they feed.

*Pre-emergent hibernators.* I use this term (for want of a better one) to denote those species—represented in several families—which become adult in late summer or autumn but remain dormant in the pupal cell in soil, rotten wood, etc., until the following spring or early summer. Although, therefore, they pass the winter in the imaginal state, it is not exactly hibernation as the word is generally understood—not being preceded by a period of activity. Examples are *Melolontha* and the Cetoniini (but not the Trichiini), forming their cells underground; most Elateridae (those living in rotten wood, with two or three exceptions, are thus readily obtainable in the winter months); *Ptinus palliatus* Per., *Xestobium* and the rare *Anobium denticolle* Ctzr., *Opilo*, *Ischnomera* (these in decayed trees, posts, etc.);



*Aulonium* (in thick elm bark infested with *Scolytus*), *Donaciini* (in firm cocoons attached to the rhizomes of water plants) and sundry Longicorns—*Rhagium mordax* Deg. (under bark of hardwoods), *R. bifasciatum* F. (in pine stumps mostly), *Acanthocinus* (under bark of Scots pine logs in the Caledonian forests), and *Mesosa* (in decayed branches fallen from oaks in winter). No doubt when life-histories are better known this class will be enlarged considerably; other beetles appearing in spring or the beginning of summer, but not in autumn, may belong to it—e.g. *Cicindela*, *Byturus*, some Attelabidae, *Phyllobius*, *Polydrusus*, etc.

*Groups prevalent in winter.* Most of the ground beetles are apt to be found hibernating, but so sparingly as to suggest that more individuals pass the winter in the larval or egg stage. Probably, however, many of the adults bury themselves at some depth in the ground, while *Carabus problematicus* Hbst., *Pterostichus niger* Schal., *Cychrus* and others are rather often to be found deeply embedded in rotten logs, etc.—like queen hornets. (It would be interesting to note the sex of Carabids found overwintering; I have a strong idea that with *Pt. madidus* F., for instance, the great majority—if not all—are females right up to the new generation in early summer.) Some species of *Agonum* tend to congregate under suitable cover for the winter. The brilliant *Lebia chlorocephala* Hoff. is occasionally met with in quantity under juniper, broom, etc., and I once took two in a rotten paling in November. Many water beetles spend the cold season in their proper element, especially in partly dried-up pools or water-holes (even beneath a thick layer of ice); but some burrow into mud, while others—including most of the smaller ones—pass the winter out of the water, under dead leaves, moss, etc. Small Staphylinidae are numerous and there is no better time to collect the elegant species of Stenini (of which we have just 70, mostly not hard to determine) as they tend to hibernate in companies, many species together, in damp moss, reed litter, and similar habitats not far from water; I have taken 16 species from a square yard or two of moss in February, and others have recorded experiences of the same sort. The rare and distinct *Stenus kiesenwetteri* Rosen. is said to be far more readily obtained in winter than at any other time. In the Clavicorn families, again, it is mainly smaller species that will be found; so also in the Heteromera, particularly those living under fungoid bark—*Tetratoma*, *Orchesia*, and certain Salpingidae. Most of the Ciidae occur commonly in winter, but few species will be encountered in the Malacoderm families—examples are *Haplocnemus* and (rarely) *Phloeophilus*, under bark and in old trunks. In the Phytophaga, many species of Chrysomelini can be found; in the Rhynchophora, a good many of the smaller forms; members of both suborders may be taken at the roots of their foodplants or in moss, etc., or beneath bark in their vicinity. Species of *Apion* often winter gregariously in stack-bottoms, and probably all the Cossonini (wood-boring weevils) are to be had. This is a good time to collect also most of the Scolytidae or bark beetles, other than *Scolytus* and those which bore into solid wood.

*True winter species.* These are naturally few, and in our fauna chiefly limited to the Omaliinae, a subfamily of the Staphylinidae. *Orochares angustatus* Er., a very little-known species, has been recorded

only three times in Britain; it occurs from November to March on the Continent and has been stated to be 'abundant in the winter in Belgium, always in beetroot fields, under the decaying leaves'. If therefore coleopterists in our country having easy access to such places were to make a search at the appropriate time, they might be rewarded with specimens of this distinctive rarity. The smaller *Acrolocha minuta* Ol. (= *striata* Grav. nec Fowler, Joy) is to be found during the same period in garden refuse and haystack-bottoms, but so far almost only in N.W. Kent. *Acidota cruentata* Man., a larger species—found, though rarely, on pathways and in trenches, or under moss and leaves—appears to be another typical winter insect. *Coryphium angusticolle* Steph. occurs under bark from October onwards but is taken as late as May. These are all Omaliinae, and there are others of the group with what might be called a hiemal tendency (e.g. *Omalius italicum* Bern.). More familiar than any of the above species is *Tachinus subterraneus* L., very common in vegetable rubbish, dung, and carrion from late autumn to spring, and at once known by the orange patch or stripe on each elytron; even on the coldest midwinter day it can be shaken in plenty (in a torpid state) from almost any heap of rotting herbage, but is hardly ever seen in the summer months. One weevil on our list, *Procas armillatus* F.—a very elusive insect—has been stated to be a winter species; it seems that its peak period is February-March, when it should be looked out for under stones, etc., at the edges of cornfields and other arable land. Except that large numbers occurred up to fairly lately in one Brighton locality, where it *may* now be extinct, it is exceedingly scarce with us.

*Miscellanea.* There is much to be learnt about the winter habits of many species and groups; e.g., the carrion and dung beetles. Some are active during that season when the weather is not too cold. The larger ones are relatively seldom met with; I have twice found the big black burying-beetle *Necrophorus humator* Gled. hibernating (?) in April (in surface soil, and deep in a rotten log), and *Typhaeus* has flown to mercury-vapour light in February. Certain species of the large genus *Aphodius* are on the move—sometimes at least—very early in the year: *sphacelatus* Panz. in January, *fimetarius* L. in February. (It would be interesting to know whether such activity is due to sudden warm spells or to regular seasonal rhythms of the insects' life-cycle.) Some of the Aphodii are spring and others are autumn species, while yet others are equally both; a few of the latter (as *tessulatus* Payk., *conspurcatus* L.), according to certain writers, remain active through the winter—but this may be exceptional, or depend on the continuance of mild weather.

*Oncomera femorata* F. (Oedemeridae) is a conspicuous but elusive nocturnal beetle chiefly found on ivy bloom in autumn and on willow bloom in spring, but where it spends the intervening period does not seem to be known. It has occurred also at 'sugar', and altogether is more likely to be seen by lepidopterists than coleopterists!

Quite a community of small beetles is to be found in winter in the dead hollow stems of reeds, chiefly the reed-mace (*Typha latifolia*). They include *Telmatophilus* spp., *Atomaria mesomela* Hbst., *A. barani* Bris. very locally, and the Staphylinids *Alianta incana* Er., *Atheta nigella* Er., *Calodera aethiops* Grav. occasionally with others of the

genus, *Ocyusa maura* Er., and sometimes the bright little *Hygronoma dimidiata* Grav.; other *Atheta* spp., etc., may occur and almost certainly various species of *Stenus*—even (in favoured places) the curious Carabid *Odacantha melanura* L.

Stone- and log-turning may be tried in winter, but it must be admitted that this can be unremunerative until late March. Use can be found for the beating-tray if the collector is curious to know what beetles take up winter quarters in hedges, shrubs, and trees—evergreens being the best for the purpose; more will be met with than are probably expected, if the debris in the tray is carefully examined, and smoke blown on it if necessary to induce the small creatures to move. Also, on exceptionally warm and sunny days, sweeping may be tried to see what species are tempted out of their hibernacula; the results are sometimes interesting if not positively profitable, and there is always the chance of getting one of the rare winter species in this way.

## Current Notes

In a paper on the Lepidoptera associated with juniper in the Rhone valley (*Ann. Soc. ent. Fr.*, 126: 7 (1957)) H. Cleu deals with the European forms of the *Lithophane lapidea* complex—*lapidea*, *leautieri*, *sabinae* and *monochroma*. Of these C. Boursin has shown (*Bull. Soc. Linn. Lyon*, 26, Nos. 2 and 3, 1957) that the type of *lapidea* Hübner described by Hübner from a specimen taken near Ragusa, Dalmatia, does not correspond with the form which occurs in Western Europe known by the same name. This Western European insect corresponds with the *Lithophane leautieri* described by Boisduval from the Midi of France and figured by Millière. Boisduval's species, according to Boursin, differs from that of Hübner by its size, being in general smaller with narrower wings, by its colour, which is a light grey or light brownish instead of the 'lilac-slate' of *lapidea*, by the reniform stigma being hardly or not at all powdered with rust coloured scales, and by other differences. The underside also lacks the rosy tint of *lapidea*, and the genitalia are distinct. Hence, concludes the writer, it is necessary to restore the name *leautieri* Boisd. to the species which inhabits Western Europe from the Swiss Valais to northern Africa.

Lhomme (*Cat. des. Lép.*, No. 557) recognized only *lapidea* and *sabinae*, distinguished the latter as being "d'un gris-cendré-bleuâtre, dessins mieux écrits en brun", and gave the foodplants of both as *Cupressus* and *Juniperus*, but not specifying localities for *sabinae*. Cleu, particularising the lighter colour and effacement more or less of the orbicular and reniform stigmata in *sabinae*, remarks that it has been described from the Valais and seems to be localised there. *L. monochroma* Brsn. is of a more uniform grey and belongs to the region of the Lower Rhone (Camargue) but ranges to the Pyrenees and across into Spain as far as Barcelona. The interesting question therefore arises whether the species recently discovered to exist in England by Dr. Kettlewell is the Eastern European *lapidea* (and, if so, perhaps descended from an emigrée) or the Western European *leautieri*, and thus perhaps autochthonous. If the latter be claimed, a reason will have to be advanced for the change of foodplant; for whereas juniper

may be indigenous to this island, *Cupressus macrocarpa* certainly is not.

In *Ent. Z.*, No. 22 (15 Nov. 1957) H. Wilde describes, with figure, a remarkable aberration of *Pieris brassicae* L. The upper sides of the hind wings are heavily powdered with black scales except for a white margin surrounding each wing. The outer (anterior) black spot on the upper side of each forewing is represented by a diffused patch of black scales, the inner (posterior) spot being barely discernible. The black tips of the fore wings are normal. The specimen, which is not named, was bred. In this and the succeeding issues of the *Zeitschrift* Dr. Werner Marten continues his paper on the Spanish forms of *Zygaena sarpedon sarpedon*.

C. Dufay contributes to *Bull. Soc. ent. Fr.* (62, Nos. 2 and 3) a paper on the sexual attraction of *Lasiocampa quercus* ♀♀. Various statistics are given, but nothing emerges from them that is not already known. Experiments on this subject are exceedingly difficult to carry out with a scientific precision that precludes every possible influential happening or detrimental contingency. The timed arrival of marked males is generally valueless. On release, the males of this species at once begin ranging up-wind, and it may not be until they are within a couple of hundred yards of the 'calling' female that they actually pick up the scent. If the experimenter has previously been in the same room with, or even closely down-wind of, a calling female, he may carry scent particles on his clothing. Then when he has liberated the male perhaps a mile away he may himself lay a trail of scent back to the female's cage. We never yet read of experiments on this subject (and they have been legion) which were not vitiated by some overlooked contingency.

In this journal in 1910 (*Ent. Rec.*, 22: 29-30) Tutt discussed "Agriades polonus Zeller" which he claimed was "a British insect" and gave some account of the recorded examples of this form. *Lysandra polonus* is usually said to be a hybrid *L. bellargus* × *L. coridon* and it occurs, and has occurred, in nature only in places where both species are flying together and where both are restricted to the same larval foodplant, *Hippocrepis comosa*. *L. bellargus* has in fact been taken *in cop.* with *L. coridon*; but apparently the progeny, in the only recorded case which we have seen, were not *polonus*. Has anyone tried to breed *polonus* by hand-pairing the two species? Tutt remarked that "the genitalia are almost precisely alike in both". Later in the year (1910) Tutt himself took "a beautiful ♀ *Agriades* hybr. *polonus* Zell." in Tyrol and remarked that it was "the only specimen yet recorded of this sex" (*Ent. Rec.*, 22: 181). We should like to hear from some of our readers who specialise in the 'Blues' on this subject.

Our Treasurer, Mr. A. C. R. Redgrave, is about to move house and will shortly be settling down again at Gloucester. In the meantime will our subscribers who pay their subscriptions by cheque please send their remittances (25s) to Mr. F. W. BYERS, 59 Gurney Court Road, St. Albans, Hertfordshire? Cheques should be made payable to *The Entomologist's Record*.

## Notes on Microlepidoptera

By H. C. HUGGINS, F.R.E.S.

*Alucita galactodactyla* Hüb. In his paper on this insect (*Ent. Rec.*, 69: 231) the Rev. D. P. Murray comments on the localization of the moth and says it favours chalk soil. I have always found it exceedingly local anywhere. I collected for thirty years in the chalk districts of Kent from Gravesend to Canterbury and only found it in two places, on the chalk downs just above Snodland and at Belmont near Faversham. It is equally local on our heavy clay here at Westcliff. I had never found it till this last year (1957) when I discovered a very large colony on the clay at Woodham Ferrers, on the road from Battlesbridge to Burnham on Crouch. It is very strange that a moth that appears to care for no particular soil, with such a generally distributed food-plant, and so common where it occurs at all, should be thus localized. I had been collecting here, and looking for it to add to our local list, for twenty-five years before it turned up.

*Epischnia boisduvaliella* Guén. I was interested and not at all surprised at Mr. H. N. Michaelis's note (*Ent. Rec.*, 69: 247) stating that the Lancashire record was erroneous. Although various foodplants are given I have never found it except on the Sea-pea, which grows on pebbly beaches chiefly in East Anglia, and have never heard of a certain capture except in that district, where it has been taken by Mr. L. T. Ford, the late Sir John Fryer and myself, besides the original captor, Farr. Lancashire seems certainly a great and rather improbable jump for it to make. The only surprise in the correction is that so experienced and careful a collector as my old friend William Mansbridge should have made such a mistake, particularly as Barrett in his account of *Anerastia lotella* Hüb. (Vol. X, p. 66) gives a warning about the superficial resemblance of the two. It must be remembered, however, that in 1940 when he wrote on the subject Mansbridge was a very old man, I believe well over 80, and probably his eyesight was failing a little.

January is a good month to collect plant stems for the Tortricids: the larvae of several species spend the winter full-fed in these. Amongst those that may be mentioned are *Phalonia alismiana* Rag. (great water-plantain), *Lozopera francillana* Fab. (wild carrot), *L. dilucidana* Steph. (wild parsnip), and *L. beatricella* Wals (hemlock). The last named was always considered both rare and local till comparatively recent years; but I should not despair of finding it anywhere in the southern counties where hemlock grows. At Margate I also bred it from dead stems of alexanders, but have failed to find it in them in South Essex and think it probable that larvae had merely burrowed into these stems to pupate after leaving a neighbouring hemlock.

Now that *Eustroma reticulata* Fabr. has been rediscovered I am wondering how soon it will be before one of our northern collectors finds *Argyroploce penthinana* Guén. again. It used to be bred freely from old balsam stems gathered in winter. All these stems must be kept out of doors, exposed to the weather, till May.

## Field Work

How to store the pupae of those moths which pass the winter in the pupal stage is a problem which we all have to face, and it is not always an easy one to solve. With hibernating larvae the more closely the conditions in which we keep them approach the natural state, the greater is likely to be the mortality; for winter is an adverse condition and often it is a very severe one. Therefore it is natural that a proportion—usually a considerable proportion—of each brood of larvae which passes the winter in that state should die. And although the same cannot be said of pupae (for all Lepidoptera have adapted themselves so well that they have largely overcome the dangers of this time of stress) winter is, none the less, a difficult time for many of them.

The task which confronts the breeder of Lepidoptera therefore is to avert the dangers peculiar to this stage of the life-cycle and thus ensure that as many of his pupae as possible shall survive the winter and result in moths the following spring and summer. It is important, then, to understand the principles which are involved in this matter.

Every entomologist knows of the histolysis and histogenesis which go on inside a pupa during this stage of the life-cycle, and although this modification of structure is but a step in the progression of embryonic development plainly it is a critical period for the insect. It is indeed a crisis, and like all crises which occur in an animal's life it is a period during which the insect is peculiarly susceptible to the conditions of its environment.

If one removes, say, half a dozen Noctuid pupae from a pupating-trough in autumn and puts them on a shelf in an outhouse one finds that some of them, more usually all, will fail to result in moths when the normal time of emergence arrives. On examining one of these pupae it will be noticed at once that the abdominal somites are no longer movable; the pupa is hard and rigid; and on breaking it open it is plainly seen that its contents have dried up. Perhaps the moth is fully formed but dead and dry, or perhaps there is no sign that development had begun. What has caused these pupae to dry up?

Plainly loss of water. The air surrounding these pupae has had, for either a long or a short period, a lower percentage of water-vapour than the pupae and therefore has abstracted water from them. For air which has a low relative humidity will draw water-vapour from objects which have a higher water-content—which is the reason why we spread our damp towels over a towelhorse to dry. So unless the air surrounding a pupa has so high a relative humidity that it will not abstract water from the pupa, that pupa will dry up like one's towel. In order to winter pupae successfully therefore we must provide them with such environmental conditions as will prevent this from happening.

The retention of water is one of the chief problems with which all insects—indeed all small terrestrial animals—are confronted, and the Lepidoptera meet the problem in various ways. The Pusmoth seals himself up hermetically in a waterproof cocoon. The Sprawler and Small Brindled Beauty pupate usually eight inches or more under the surface of the ground. Moisture is constantly seeping up through the soil in dry weather, so that even when the surface of the ground is caked hard the soil a few inches below the surface is rarely dry. Thus

these deeply pupating species are assured that the air surrounding them has a sufficiently high water-content to prevent the abstraction of water from them. Species which pupate near the surface or among debris on the surface in summertime usually do like the Pussmoth: they enclose their pupae in silken cocoons so closely woven and so water-proofed inside as virtually to prevent evaporation. Others which spin but a flimsy cocoon above ground have doubtless adapted themselves physiologically, perhaps in the same way as the unprotected butterfly pupa.

For butterfly pupae which are unprotected by a cocoon seem to have evolved a special means of preventing loss of water. It has been shown that in the case of certain insects in a very dry air water-vapour escapes so rapidly from the tracheal system that the air in the tracheae becomes relatively dry, and the rate at which water will diffuse through the tracheal walls then becomes the limiting factor in water loss. For in these species evaporation takes place almost entirely through the spiracles. It has been shown also that the level of dryness at which this occurs is peculiar to each species; thus each species has adapted itself to meet the conditions peculiar to its normal environment. Another source whence such pupae can assure the necessary water-content, no matter how dry the surrounding air, is by the oxidation of hydrogen in the reserve supplies, that is to say the fat, and the complete combustion of 100 gm. of fat has been found to yield 107 gm. of water. "This", remarks a leading insect physiologist, "is certainly an important source of water".

At this point the reader may say: if the cocoon is watertight to such an extent that the pupa within it cannot lose water by evaporation, how does the insect expel its carbon dioxide and obtain oxygen? The answer to that question was supplied, in 1940, by some very interesting experiments made by L. G. Hulls. He cut off one end of an oak eggar's cocoon, removed the pupa, and sealed the cocoon to a glass tube. "The tube was then connected to a U tube into which mercury was poured. It was found that a column of mercury 4-5 inches in height could be supported for several minutes, during which time the air was slowly forced through the cocoon. Next some dry powdered methylene blue was poured down the tube into the cocoon, which was then suspended in a beaker of water. After twelve hours there was no sign of blue colour in the water. Water was then added to the methylene blue in the cocoon, and it was clamped with its end resting on a white filter-paper. After twelve hours there was no blue stain on the paper. The cocoon containing the blue solution was then suspended in water, and after ten hours the first sign of blue colour appeared outside the cocoon. These experiments would seem to indicate that the material of the cocoon is to all intents and purposes waterproof, and that air can be slowly forced through it at a pressure slightly above that of the atmosphere."

Actually the amount of air which a pupa requires is exceedingly small. In a letter to the writer some years ago that great rearer of Lepidoptera the late Frank Littlewood of Kendal wrote: "In October I put a pupa of *Mamestra persicariae* (the Dot) into a tightly-corked glass phial, of the smallest size, and the cork was not removed till May of the following year. I then took out the pupa and put it into my forcing-cage, and in a week or two bred a perfect and lively moth . . .



Respiration must be almost suspended during the pupal stage (*i.e.* in winter), though activity may vary at different periods of development."

The danger of a pupa drying up is not over when the moth lies fully developed in the pupa-case. With some species the imago is fully developed before winter and lies perdu in its case until the following spring. If during this period the surrounding air is dry (as it would not be during winter out of doors) the moth will still lose water by evaporation and will probably dry up. Even if it does not lose sufficient water to kill it, it will most likely be a cripple when eventually it emerges, partly because it has become too enfeebled (anaemic) to make the muscular actions which force the blood into the veins for wing-expansion, partly because it has not sufficient blood to expand the wings, and partly because through lack of plasma the membranes of the wings have become less pliable than they should be. Cripples in the pupa-case are not due to any natural weakness or constitutional defect but are an indication that we have failed in some way to provide the correct treatment (*i.e.* the ecological norm) for larva or pupa. The fault is ours, not the moth's. When we find a crippled moth in the wild, as we quite often do, we can be assured that some mischance has befallen the insect at a critical period. So we must adopt some plan for preventing the insects in our cages from losing *any water at all* by evaporation from the time of the pupal ecdysis to the emergence of the imago.

"Surely," the reader may say, "one could ensure this simply by keeping the pupating-troughs out of doors all through the winter. Then one's pupae would be in the same conditions, as regards atmosphere, as they would in the wild." Granted that with some species one can leave the pupae in troughs out of doors during the winter expecting that one will achieve at least a moderate measure of success. On the other hand, such pupae will thereby be exposed to lengthy periods of frosts and east winds during which the compost in which they are embedded will become as dry as a bone; and if this happens a percentage, a good percentage, of the pupae will dry up and die, even as some of them do in the wild. Moreover we shall be exposing our pupae to the risk of mould (so common in the wild as every pupa-digger knows) and enemies of various kinds which inhabit soil. Even when the compost has been sterilized and muslin tied over the trough one cannot guarantee that some wretched clothes-moth has not got into the larva-case just before the larvae went down and has laid its eggs in the compost with the sole object of destroying our pupae.

Suppose, too, that only eight moths emerge from a trough in which you know that twenty larvae went down: what are you going to do? Put the trough on a shelf and wait till next year? Then how about an autumn emergence and more clothes-moths and decaying dead pupae which are contaminating the compost all round about those pupae which are lying over till next autumn or spring? And how are you going to assure the requisite moisture throughout the following summer for those which have not yet emerged? As just said, there are some species which may 'do' best if left *in situ* throughout the winter; but there are many others which invariably disappoint one if they are left for any length of time where the larvae have pupated. Some species are so hardy—the Eyed and Poplar hawkmoths, the Great and Pebble Prominents—that they will emerge from the pupa successfully no matter how they



are wintered; but the majority of the species which one wishes to rear, and some of the most interesting kinds, do undoubtedly respond best to a certain treatment.

Here a note of warning must be sounded. There are some species, for example *C. morpheus*, the Mottled Rustic, and *E. adusta*, the Dark Brocade, which go down into the pupating-troughs late in autumn and lie there doggo throughout the winter, not pupating until the following April or May, the pupal stage being of short duration. Obviously these species must on no account be disturbed. The troughs containing them can either be left inside a larva-cage or, with fine muslin tied over the tops, stored in some cool place throughout the winter. It is a good plan to spray, lightly, the surface of the compost in these troughs with weak saline solution, to prevent mould.

(To be continued)

## Collecting Notes

Has any Burnet specialist worked the coasts of Pembroke and Cornwall—and, above all the south coast of Ireland—of recent years? Browsing on the 1908 volume of this magazine the other day we came across the following paragraph by Tutt. He had been discussing Cockayne's recent discovery of *Zygaena achilleae* Esper near Oban. "Besides this Argyllshire locality we suspect another British one. This is in Cornwall, and it is noticed in *The Natural History of British Lepidoptera* as a possible locality of *Anthrocera purpuralis*. We have little doubt that this species and *Anthrocera transalpina* (*hippocrepidis* Hb.) occur in other western valleys of the British Isles, and possibly *A. carnioica*. All these are locally abundant in Brittany with *A. purpuralis*, and will most likely turn up some day. *A. hippocrepidis* Hb. must not be confounded with our now well-known *A. hippocrepidis* Stphs., but, like it, it is a very *filipendulae*-looking species, though usually much brighter in colour".

This last sentence has reminded us of an incident which occurred some years ago. In a small valley running down to the sea at Cardigan Bay, close to the sea, we came upon a colony of burnets. One or two were picked off the heads of flowers to identify: they seemed to be *filipendulae* but if so they were certainly a fine brightly coloured race. Have any of our readers come across this Welsh colony? The spot was only a mile or two north of Aberystwyth—either Clarach bay or the bay round the next headland northwards. On the other hand, on Dartmoor in 1949, on the right of the road going from Two Bridges to Postbridge, we saw the smallest and dullest, and fastest-flying, *filipendulae* we remember to have seen. Most of us merely glance at an English or Welsh burnet to see if it has five spots or six. Closer study of this interesting family might be rewarding.

"History repeats", although the causes which bring about the repetition are not always the same. But when Tutt commented in this journal in 1907 on the slowing down of the stream of "Notes and Observations" which had hitherto reached him his diagnosis might have been penned to-day. "There has been a tendency during recent

years", he wrote, "for our British collectors to give us fewer and fewer of their observations on British insects. This has probably been partly due to the series of wretched collecting-seasons through which we have recently passed, partly to the wish not to repeat oft-recorded observations, and partly also to the raid that certain collectors make on a new collecting-ground, when a rare species of the Macro-lepidoptera is found in new haunts; all of which, however, tends to lower the actual amount of the output of scientific notes bearing on the habits, habitats, and distribution of our indigenous species".

Nearly fifty-one years ago an interesting Note by Dr. R. Freer of Rugeley, Staffordshire, a great collector in his day, was printed at page 22 of vol. 19 of this journal. It was as follows:—"I obtained *Polia xanthomista*, as well as *P. flavicincta*, when in Cornwall. The former emerged during the middle of August, a specimen of the latter (the only emergence) on September 14th. This example is, on the upperside, exactly like *P. xanthomista*, and not to be distinguished therefrom. On the underside, however, it does not agree with *P. xanthomista*, but the underside fixes it absolutely as *P. flavicincta*, the undersides of the two species being very different". Since that Note was written much collecting has been done in Cornwall. Have any of our readers who have taken *P. flavicincta* at m.v. or sugar in the Duchy come across the above-mentioned aberration? Or have they in their cabinets dubious specimens of *xanthomista* which may really be *flavicincta*?

At page 246 of our November issue our correspondent Mr. B. Goater remarked that he had been taking *Naenia typica* L. at Mill Hill, in the north of London. This insect used to be common in Kensington at the beginning of this century and a contributor to the *Record* in 1906 said: "I have never taken the insect at light or sugar, but have found it commonly at privet bloom just after dusk. Neither larvae nor imagines are nearly so common in Kensington as they were three or four years ago. In 1902 and 1903 I could get the larvae in some numbers off dock, but this year I have not seen half a dozen and last year I saw very few more". On two or three occasions we have come upon closely packed batches of larval *typica* in their first instar on the leaves of *Salix caprea* in autumn. At the slightest movement of the leaf they hurl themselves off it. Apparently they hibernate among herbage on the surface of the ground. The moth comes freely to sugar in East Herts.

## Practical Hints

The males of *Erannis leucophaearia* usually appear quite early in January—we have a record for the 3rd. Split-oak palings such as often surround parks are much favoured as daytime resting places; but they must face north and be near an oak woodland even though the woodland be only a small copse. It is surprising what handsome forms of this pretty moth can be collected in a single season by paying a daily visit to the same fence. We never saw a female elsewhere than on the trunk of an oak and unless *in cop.* they creep into crannies

and are virtually invisible. The ♀ ♀ one sees in collections are usually the product of a pupa-digger.

For a reason which nobody seems to know the imagines of *Poecilocampa populi* disappear from street lamps early in December and do not reappear thereon until January. On rare occasions we have probably all seen an incredible number of males flying round a lamp, often the last lamp on the outskirts of a town or village. But the ♀ ♀ do actually visit the lamps at times as well as the males and on more than one occasion we have obtained good batches of fertile eggs from such moths taken in the middle of a small town.

Searching grass verges and the bottoms of hedgerows with a lantern on mild evenings in January is usually cold work and is probably confined, nowadays, to the younger enthusiasts among us. Yet for all that it is profitable work for the field lepidopterist. Every day in the life of a larva is a day of peril, and this applies to winter no less than to summer. As the weeks pass by, frosts and diseases and moulds and the predators of each species add to a mounting death-roll. For a dozen small larvae of a grass or herb feeding species that the lantern discloses in January there will be but one half-grown one in April. *Carpe diem* is a good motto for the field worker at this season.

January is a good month for overhauling the larvarium and its appurtenances. Larva-cages should be sterilized and examined for holes and crevices large enough to admit a predator. Metal pupating-troughs must be plunged in boiling water. Probably at least one new net will be required—and remember (if your purse will run to it) that the material used for wedding veils is the stuff *par excellence* for nets. If sugaring be your practice, brew and fill a dozen screw-topped bottles (jars for preserving fruit serve well) with the particular brand you favour; if Jamaica rum be added it improves with age. Bake all pupating compost. Collect moss, cut it up with scissors, and sterilize by putting it into a tin with p.d.b. for a month. Then spread out on a newspaper, turning occasionally, until every vestige of smell has evaporated. But see that it is stored thereafter in a tin with a tightly fitting lid.

It is not a bad plan to pot up foodplants at this season. Seedling oaks and birches and conifers, in fact all forest trees, can be grown in largish pots, and these are most useful for rearing small larvae. If kept in an unheated room facing north there is no need to cover such potted plants: so long as the foodplant remains fresh there is no inducement for larvae to leave it. Take up as much soil as possible with the roots, in fact disturb the rootlets as little as possible. If you pull up forest seedlings, shake the earth from them, and plant them in a pot none of them will grow. The soil in the flowerpot should be the soil in which you found your seedlings growing. Plant firmly, and see that you water in well. Then 'plunge' (as the gardeners call it) the pots to the rim in a shady flower-bed or border (it must be shady) until required. Search well for predators (ants especially) before you bring the pots indoors,

## Notes and Observations

*DAPHNIS NERII* L. IN CORNWALL.—The capture of a fine specimen of *Daphnis nerii* L. at Fowey on 30th September 1956 has recently come to my notice. It was found on the gatepost of a house in the town and taken to Mr. K. O. Larsen, one of the local schoolmasters. He very kindly sent me an excellent photograph of the moth to-day.—DR. F. H. N. SMITH, Perranporth, Cornwall. 23.xi.57.

*COLEOPHORA CLYPEIFERELLA* HOFMANN.—Among the catch in the m.v. trap in my garden on 24th July, 1957, I took a specimen of *Coleophora clypeiferella*. This has been identified by Mr. S. Wakely who took the only other recorded specimen of this species in Britain, in August, 1953. He describes the moth in *The Entomologist's Record*, 66: 272. The foodplant, seeds of *Chenopodium*, is abundant on the bombed sites in Dover. My thanks to Mr. Wakely for making this discovery among my unidentified specimens.—GEORGE H. YOUNDEN, 18 Castle Avenue, Dover. 20.xi.57.

*THYMELICUS LINEOLA* OCHS. IN LINCOLNSHIRE.—Whilst examining a colony of *Thymelicus sylvestris* near Grantham during early August I came across a single specimen of *T. lineola*. I have often searched through colonies of *sylvestris* in north Lincs. in the hope of finding *lineola* but have never met with any success. It would be interesting to ascertain whether the Grantham area is its northern limit. *Lysandra coridon* was also flying in small numbers in the same locality and I believe that this area represents the northern limit of this species.—J. HARDCASTLE SEAGO, 105 Racecourse Road, Swinton, Mexborough, Yorks. 17.xi.57.

*PAMMENE AURANTIANA* STAUD. IN SUFFOLK.—One of five hundred specimens of small moths recently very kindly named for me by Mr. S. Wakely turns out to be *Pammene aurantiana* Staud., first recorded in Britain in the October number of the *Record*. On the afternoon of 10th August 1951, on the road between Stowmarket and Onehouse, in Suffolk, I captured a specimen of this species, either by finding it on a flower head of *Angelica* or by disturbing it from the grasses. I had no idea at the time what the insect was, but I remember being impressed by the beautiful golden colour on the forewings, and I took the moth because I had not seen it before.

Lhomme describes it on the continent as "peu observé" and as feeding on maple, but regards the larva as unknown. There are small bushes of maple along the Onehouse Road, as there are many other plants, but I could not possibly claim any association. At all events this occurrence in 1951 in Suffolk does seem to support Mr. Wakely's suggestion that *aurantiana* may be well established here but needs observation by day.—A. E. ASTON, 1 Aysgarth Road, Dulwich, S.E.21.

*LEUCANIA UNIPUNCTA* HAW. IN SOUTH DEVON.—On 28th September 1957 I captured a very fresh *L. unipuncta* flying round my m.v. lamp, and my son M. W. Harper caught another equally fresh one at sugar the same night. I have heard of other captures of this species in the

district and of large numbers being taken in the Scilly Isles. It certainly looks as if the species may have effected at least a temporary lodgement in the South West this year. Other migrants were scarce in South Devon in September, only one *Plusia ni* Hb., a few *Colias croceus* Fourc., and a fair number of emigrating *Vanessa atalanta* L. being seen; several of the latter came to m.v. and house lights at night. —Commander G. W. HARPER, R.N., Neadaich, Newtonmore, Inverness-shire. 18.ix.57.

LEUCANIA UNIPUNCTA HAW. AS A RESIDENT SPECIES.—With reference to Mr. Bretherton's note (*Ent. Rec.*, 69: 251) I think it may be taken that *unipuncta* has succeeded in establishing itself at any rate temporarily in the Scilly Islands, where I had the pleasure of seeing it in late September. I understand it has occurred there quite freely in the past two years. I was only on what might be called a personally conducted tour, but I believe full particulars on the subject are in preparation.

I much doubt whether it is established in south-western Ireland, where it almost certainly formed a temporary colony from 1928-1934 at Ummera. Donovan in his "Supplement" (December 1936) stated that none had been taken since 1934 and in a letter in 1938 he told me that his sisters had seen no more. It must be remembered that S.W. Ireland is one of the wettest parts of the British Isles and the Scilly Islands are one of the driest (28 inches average rainfall). I was amazed this year when looking over the wonderful gardens at Tresco Abbey to be told by one of the gardeners that they had a difficulty in growing many sub-tropical plants because of the low rainfall. I had always imagined that as in S.W. Ireland it rained nearly every day! —H. C. HUGGINS, 65 Eastwood Boulevard, Westcliff-on-Sea.

CARADRINA CLAVIPALPIS SCOP. IN WINTER MONTHS.—With reference to Mr. A. A. Allen's note in the November 1957 issue of the *Record* (69: 245) on the occurrence of *C. clavipalpis* in February and March, I think this species is very probably inherently continuously brooded. Mr. A. M. Stewart in his book *Common British Moths* (1913) describes the finding of fresh imagines in a mine in March, and says that the miners told him that they were to be found there, in an even temperature, all the year round. I also have found the species is very prone to breed indoors, and I have found fresh specimens, both in Sussex and here in Inverness-shire, as late as December and as early as March. I have failed to discover the larval food, however in Mr. Stewart's mine it was the hay on which the pit ponies were fed; but I don't normally keep grass seeds in my own house! —Commander G. W. HARPER, R.N., Neadaich, Newtonmore, Inverness-shire. 18.ix.57.

———. —Mr. A. A. Allen's record of exceptionally early emergences found inside the house (*Ent. Rec.*, 69: 245) suggests that the moths may have originated from larvae which pupated inside the house. In 1953 I found a newly emerged *Pieris rapae* L. in my kitchen on 4th January, and later found the empty pupa-case behind a wooden plate-rack. Last year I found a newly emerged *Spilosoma lubricipeda* L. in my study on 31st January and feel sure that it must have come

from a pupa inside the room. Only a week ago I found a pupa, which I think is *Apatele psi* L., in one of the upper folds of a curtain which was being taken down to clear a room for redecoration.

None of these pupae came from larvae being bred in captivity, and I think that wild larvae occasionally wander in through open doors and windows, emerging unseasonably owing to the relatively high temperature of their environment.—Air Marshal SIR ROBERT SAUNDBY, Oxleas, Burghclere, Newbury, Berks. 18.xi.57.

THE 1957 SEASON IN NORTH-EAST HAMPSHIRE.—November 1956 brought us the only severe weather of the winter, and a brood of *Aglaia urticae* L. which had pupated in October were so delayed by it that I had visions of becoming the first to over-winter this species in the pupal stage. The unseasonable warmth of the Christmas holiday period, however, resulted in the appearance of the imagines, all of which emerged before the end of the year.

The new season was abnormally early; *Phigalia pilosaria* Schiff. appearing with *Erannis defoliaria* Cl. on 2nd January. By 1st July I had taken or seen thirty-one more species than by the same date last year; but after that the rot set in. The cold wet weather of last autumn presaged ill for 1957, but I was quite unprepared for such appalling scarcity. Sugaring proved a waste of time—less than twenty species (and not many more specimens) came to the bait during the whole of August and September. Of *Philudoria potatoaria* L., a pest in my m.v. trap last year, I did not see a single specimen, nor was this species alone in this respect—at the time of writing (1st November) I have encountered twenty-one fewer species than last year.

A disturbing feature has been the almost total disappearance of *Nymphalis io* L., once our most abundant Vanessa. I saw but one nest of *Euphydryas aurinia* von Rott. and nowhere met with *Argynnis cydippe* L., *Thecla quercus* L. or *Callophrys rubi* L.

Five immigrants only were noted; a single *Nomophila noctuella* Schiff., one larva of *Vanessa cardui* L., two *Macroglossum stellatarum* L., some forty unusually large *Vanessa atalanta* L., and a few score *Plusia gamma* L. were all that came my way.

Many species that normally appear throughout the summer had a rather short season. *Biston betularia* L. came to light on 13th May, five days later than last year, and was last seen on 30th July, thirty-two days earlier than in 1956. Its numbers also were fewer by 119, only 189 specimens this year though the proportions of the three recognised forms were much the same as in previous years—*betularia* 45%, *carbonaria* 46%, *insularia* 9%.

As usual there were consolations; there always are; a naturalist is never overtaken by boredom. A few species were common, notably *Coenonympha pamphilus* L., *Aglaia urticae* L., and in its one locality *Strymon w-album* Knoch, whilst the decline of *Lycaena phlaeas* L. and *Polyommatus icarus* von Rott. appears arrested. Seventy-five *Hyloicus pinastri* L. entered the trap in my garden, where *Smerinthus ocellata* L. and *Deilephila porcellus* L. appeared in something like their old numbers. *Polia tincta* Brahm was quite common, and welcome first-timers were *Apatele alni* L. (two in June), *Pyrausta aurata* Scop. (at Froyle) and *Galleria mellonella* L. (plentiful in disused beehives). These

and the inadvertently omitted *Episema caeruleocephala* L. must be added to the list of Lepidoptera of the Aldershot District of N.E. Hampshire printed early this year in this magazine. *Pyrausta nubilalis* Hüb. is probably resident, a further pair appearing in June.

In general it was the total population rather than the number of species that was so far below the average, and this was especially true in the autumn. Gladly, therefore, as yet another summer of our meagre span is gone, we turn hopefully to 1958—it could hardly be worse.—A. W. RICHARDS, Oriel, Court Moor Avenue, Fleet, Hants. 2.xi.57.

A SUPERFLUOUS VARIETAL NAME.—In one of his last letters to a correspondent, written on 5th May 1955, S. G. Castle Russell wrote:—"I have worked among various colonies of *tullia* (*typhon*) in the South and in Westmoreland and Lancashire; I found them all of very much the same form and the variation was so considerable (in a minor degree) that it was difficult to find two exactly alike.

"I agree that the Irish, the Cheshire and Shropshire forms and also the Arenig locality near Bala are also distinct from other forms and entirely so from the Lancashire race. The small Carlisle race—which in several successive seasons produced a lot of aberrations—when bred are fully as large as the Southern races and unvarying.

"I saw an article in the *Entomologist* from a collector named Hopkins, who after looking at my series in the Tring Museum picked out a white underside and included with others in a plate. He named it *ab. cockaynei*. Why, I can't imagine as I do not think Cockayne ever bothered to collect *typhon* and was always moth collecting.

"Hopkins also states that his experience of the species was gained from the Westmoreland and Lancashire forms.

"Now, the form he has named *cockaynei* is quite common amongst the Shropshire and Cheshire forms and to a smaller extent at Arenig. All we old collectors knew of it, but it was not considered worthy of a name. If you refer to Cheshire and N. Wales, *Nat. Hist.*, Vol. 3, there are four plates of the various forms taken by Crabtree, myself and others.

"If I had the energy to do the job, I should like to give an account of my collecting in the Cheshire and Shropshire localities, especially Delamere, where I visited every locality where *typhon* had been known to occur in numbers.

"In 1925 I paid a visit to Delamere Forest and found the mosses fully four feet under water".—Colonel S. H. KERSHAW, Alderman's Place, Aspley Heath, Bletchley, Bucks.

OXYCERA FORMOSA MG. (DIPT., STRATIOMYIDAE) FEMALE TAKEN AT MILLERSDALE, DERBYSHIRE.—Mr. E. Lewis kindly collected a specimen of this fly for me on 28th July, 1957, when attending the Tenth Congress of British Entomologists. In *British Flies* v. '*Stratiomyidae, etc.*', 1909, G. H. Verrall recorded it for Dorset, Hants., Sussex, Surrey, Suffolk, Norfolk, Cambs., Glam., Herefordshire with a flight period June 23rd to August 10th and in Europe as far north as southern Sweden. Recently Mr. A. Brindle (*Ent. Record*, 69: 164) has recorded this fly from north-east Lancashire in June but it appears to be rare

in the north of this country. Mr. E. C. M. d'A. Fonseca has found it in Gloucestershire in June.—L. PARMENTER, 94 Fairlands Avenue, Thornton Heath, Surrey.

## Current Literature

THE PURSUIT OF BUTTERFLIES AND MOTHS: AN ANTHOLOGY. By Patrick Matthews. With 4 coloured plates and 32 plates in monochrome. Size 10 × 7. Price 30s. net. Chatto & Windus. 1957.

My first thought on receiving Mr. Patrick Matthews's book was "we've had to wait a long time for such a book as this"; my second one, after I had dipped into it, "and well worth waiting for". There can be no two opinions about it—it is a beautifully got up book and it is worth reading from cover to cover. It does not call for a 'review', because it consists of selections from books or articles by well-known writers which have already appeared in print. And interspersed are many really beautiful photographs, with four plates in colour.

In one of his popular moth-hunting books Mr. Allan complained of a dearth of good writers on collecting. I am sure he will be surprised and pleased with Mr. Matthews's book, as I believe everybody will be who buys it.

Mr. Matthews gives us thirty-one selections from the works of about 26 authors, some living, some dead, and they are all good. I can think of only one story which I should have liked to see included—Barnes' account of the great butterfly unknown to science which flew across an African river alongside his canoe and just out of reach of his net. But doubtless we all have our favourite moth and butterfly yarns: all that really matters is that Mr. Matthews has given us an altogether delightful book which this reviewer at all events will turn to again and again, with fresh pleasure every time. Thank you, Mr. Matthews!

F. W. B.

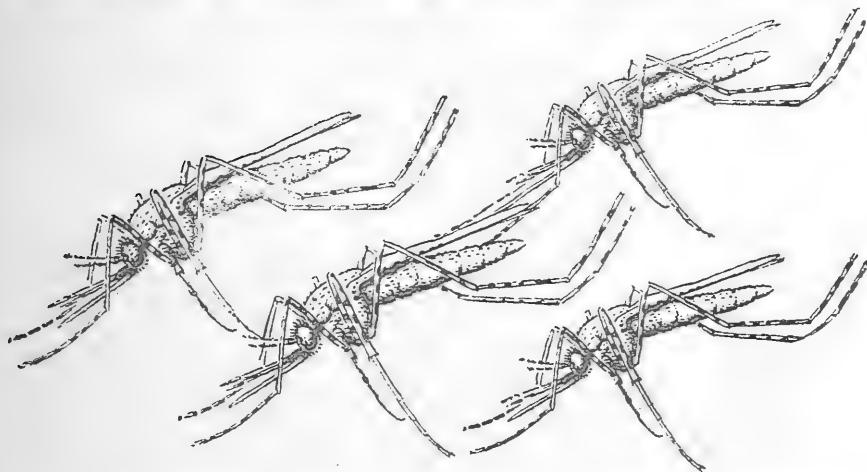
For his third and fourth "Studies of Tachinidae" Dr. E. Mellini deals with *Sturmia bella* Mg., a parasite of *Inachis io* L. [= *Nymphalis io*] (Lep., Nymphalidae) and *Ptilopsina nitens* Zett. parasitic on *Plagioderma versicolor* Laich. (Col., Chrysomelidae) in *Bolletina dell' Istituto di Entomologia della Universita di Bologna*, **22**: 69-98 and 135-176, 1956 and 1957 respectively. Besides describing and figuring the various stages in the life history of the two parasites, an account of previous literature introduces each study which ends with a comprehensive summary in English. In both cases the adult fly and pupa are illustrated by photographs. *P. nitens* is known as British and the competition between this species and another known in this country as *Meigenia mutabilis* Fall. is discussed. The two papers combine the morphological descriptive studies with detailed biological data. The eggs of *S. bella*, laid on nettle leaves, pass into the feeding penultimate and last stage larvae of *io*. Those of *P. nitens* are laid directly on second stage larvae of the Chrysomelid beetle and hatch immediately, the parasitic larvae boring into the beetle larvae.

L. P.



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## EXCHANGES AND WANTS

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*Wanted.*—Named Set Specimens of all insect orders (with data) wanted for cash.—*Davidson, 9 Castlegate, Penrith, Cumb.*

*Cambridgeshire Lepidoptera.*—Records wanted for new County list in preparation. Butterflies, Pyralids and all Chippenham fen records particularly wanted. Full acknowledgment will be given.—*Brian O. C. Gardiner, 43 Woodlark Road, Cambridge.*

*Wanted.*—Second-hand Robinson type mercury vapour lamp trap.—*J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent.*

*Pieris napi Varieties.*—There is need to share with others the work, responsibility and opportunity of maintaining British and other stocks of this species-group for experiments on inheritance, sexual mosaics, diapause, etc. Foreign as well as British, academic as well as amateur, collaboration is invited. Stocks derived from those of H. W. Head, J. A. Thompson and others.—*S. R. Bowden, 53 Crouch Hall Lane, Redbourn, Herts.*

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# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

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D'ASSIS-FONSECA, F.R.E.S.

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## TO OUR CONTRIBUTORS

All material for the magazine should be sent to the Editor.

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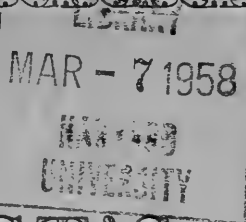
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# The Origin of Our British Swallow-Tail and Our Large Copper Butterflies

By FRANK BALFOUR-BROWNE, M.A., F.R.S.E.,  
formerly Professor of Entomology, Imperial College, London.

Recently there have been several interesting papers upon our Swallow-tail butterfly *Papilio machaon* subsp. *britannicus* Seitz which have attracted my attention because, for some years, I lived in the Norfolk Broads district where it was common and I have therefore always taken an interest in it. During the years 1903-1906 this butterfly was really common in the marshes round the Sutton Broad Laboratory, now no longer in existence, so common that no one paid any more attention to it than we do nowadays to the Garden Whites. During that time the "sedge fens" were cut every season, the litter going to London to be mixed with hay for feeding the cab horses. As cabs gave way to cars the demand for litter gradually died out and the annual cutting ceased so that changes in the fens took place very rapidly and shrubby vegetation took the place of the sedges and grasses and not only the Swallow-tail but other members of the animal kingdom disappeared or moved elsewhere.

In the present paper I have discussed the possible origin of our Swallow-tail, and, in relation to that, the origin of our Large Copper, *Lycaena dispar* Haworth, which disappeared from this country during the 1840s.

*Papilio machaon* is a variable species and, as usually happens in such cases, a large number of variations have received names and it seems that there is disagreement as to which names belong to which varieties. The species was described by Westwood, 1841, as being distributed all over Europe, Siberia, Syria, Egypt, the coast of Barbary, Nepaul, Kashmir and the Himalayan mountains, and Westwood mentioned that he had a Himalayan specimen "which scarcely exhibits the slightest differences when compared with English specimens".

I put a question as to a subspecies to P. B. M. Allan and he very kindly passed it on to R. Verity who wrote that *britannicus* and the Sicilian I generation are "surprisingly similar to each other", a similarity which he ascribed to the dampness in their insular surroundings. Warren, 1949, described *sphyrroides* Verity as being very similar in appearance to our subspecies and stated that there was little doubt but that *britannicus* "is an offshoot" of it. Riley wrote to me to the effect that *sphyrroides* "flies everywhere and nowhere has any preference for marshlands". Verity described it as "the driest form of *machaon*" and added that "it is produced both by *sphyrus* of Sicily in its third generation and by *emisphyrus* in Central Italy, also in that generation". Warren, 1949, discussing the two subspecies *alpica* and *bigenerata* in Switzerland which overlap on their mountain ranges, suggested that they remain distinct because the emergences are at slightly different times and suggested "diversity of origin." He described *bigenerata* as having spread over an immense area, its southern limit being checked by the presence of the more adaptable Mediterranean strain, subspecies *sphyrroides*! Bretherton, 1951, described the continental form which still reaches the south-east of

England and once spread over a large area of the country as *bigenerata*, although Ford, 1945, stated that it is *gorganus* Fruhst.

There are many interesting statements as to the number of generations per annum of many of the forms, e.g. of *sphyrus* as already mentioned, and Warren stated that *bigenerata* can only survive the winter here if the caterpillars of the second generation can become pupae before the cold weather, whereas *britannicus* has a long first emergence-period from May to early July and this generation can hibernate in the pupal stage or produce a second generation in the year (see Bretherton; p. 207).

In the letter already quoted Verity states that *britannicus* "belongs to the northern nominotypical *machaon* exerge which has reached Europe from Siberia" and adds that "the Race *bigenerata* is transitional between the two strains *sphyrus* and *emisphyrus* which "belong to the central exerge which has reached Europe through Asia Minor".

With all these statements available I might start a discussion but I have only mentioned them in order to show how difficult it is to determine which name should be applied to which form. I am treating *machaon* as a stock form carrying many genes or groups of genes which become active when the right stimulus arises. In other words, it is or has been a temperamental species, capable of adaptation to different environments and if this is true, then attempts to relate the various forms, e.g. our *britannicus* and *sphyrus*, as having evolved one from the other are valueless. I am therefore using the name *bigenerata* as belonging to the widely-dispersed European form and treating it as the stock from which at least the other European forms, including *britannicus*, have arisen.

Whereas *bigenerata* frequents woods, meadows, hillsides and mountains and the caterpillars feed upon various Umbelliferous and Rutaceous plants, *britannicus* is confined to marshlands and its caterpillars feed almost entirely upon the marsh- or milk-parsley, *Peucedanum palustre*. From the work of several entomologists (see Bretherton, 1951) it seems clear that "the Swallow-tail known to the 18th century entomologists was the continental *bigenerata* and in this country at least it is not an inhabitant of the fenlands. In those early days there were records for Glamorgan, Somerset, Dorset, Hants, Surrey, Sussex, Kent and even for Yorkshire where Haworth, 1803, described it as still breeding near Beverley. Ford, 1945, stated that "the Hythe district (Kent) was known to the early entomologists as a locality for the Swallow-tail at a time when that butterfly seems to have been more widespread than it is today". He stated that the continental subspecies *gorganus* is still found in Kent but that "it is unlikely that the specimens now found in Kent are the descendants of that ancient stock. Probably they are the progeny of occasional immigrants which can perhaps maintain themselves at least for a number of generations if the conditions are favourable for some years, though they may need to be recruited now and then by foreign specimens" (p. 303). It does not require much imagination to believe that from these early times this subspecies has been coming into England on this route but that, whereas at one time the climate allowed it to spread across England, now the form can barely retain its hold in the south-east. Bretherton gives a very reasonable explanation of its disappearance from the rest



of the country. The climate of the 18th century was more "continental" with hotter summers and colder winters than at present and he states that in 1816, the last year in which the Swallow-tail was recorded from Dorset, there was the lowest summer temperature since 1750, and 1816 was the last of a progressively deteriorating decade.

This is a more satisfactory explanation of the history of *bigenerata* in this country than the ingenious one offered by Wiltshire, 1956, who states that, in earlier times, Rue (*Ruta graveolens*), was grown in many places, the plant providing the strongly irritant sap used as a stimulant medicinally and for sprinkling the people with holy water (Herb of Grace: see Hamlet). On the continent rue is an important food plant of the caterpillars and Wiltshire suggested that, while it was available here in plenty, it encouraged the breeding of *bigenerata* and with the gradual reduction of the amount required, the butterfly gradually disappeared.

In spite of similarities to *britannicus* of some of the other forms, our form does not occur in any other country and there is no evidence that it has ever done so. Ford stated that it seems to him that we have rather definite indications that our butterfly fauna is the result of two waves of colonisation during warm periods separated by glacial or semi-glacial conditions. He included the Swallow-tail and the Large Copper among the arrivals in the third Pleistocene Interglacial Period which he described as shorter and less pronounced than the second and it was followed by the fourth and final Pleistocene Glaciation which was much less severe than the third. This obviously means that our two species arrived during a milder period and survived through the final glaciation.

This seems doubtful unless the last cold period was a very mild cold, and if that final cold exterminated the butterflies, there is no reason why they should not have come in again later.

Godwin, 1956, referring to the Glacial Period, expresses the view that the land which extended northwards on the North Sea bed to somewhere in the region of the Dogger Bank, the area named "Doggerland" by Beirne, 1952, was formed by the exposure of the sea bed. "So much water was locked up in the ice-sheets of the world that the ocean level everywhere fell by some hundreds of feet" and he mentions the freshwater peat (moorlog) of the Dogger Bank and other parts of the floor. "Submerged peat beds from the deep floor of the North Sea and from the less deeply submerged coastal peat-beds". I have merely referred to him as the latest exponent of this view. If the level of the sea bottom remained the same during the shortage of sea water, it seems probable that, at that low level, it would have been covered with ice or water from the ice so that there would have been no growth of peat. Therefore I would expect that, in addition to the lowering of the sea level there must have been an uprise of the area and that, along the sides of the northward-flowing Rhine, there were extensive marshes which existed for some time after the end of the glacial period and were occupied by butterflies working their way westwards. I envisage the Large Copper and the Swallow-tail, the genes stimulated by the environment, making their changes into *Lycaena dispar* from *L. batavus* or possibly *rutilus*, and *Papilio britannicus* from *bigenerata*. The much more extensive area of the Rhine

marshes seems a more suitable place for the changes to have taken place than our comparatively small fenlands. I regard the England-invading *bigenarata* as requiring a different explanation. This invasion came about the time of the opening of the Dover Straits which, according to Dudley Stamp, 1946: p. 157, caused "an abrupt change from a cold or 'Boreal' climate to the milder, damper 'Atlantic' climate owing to the change in oceanic circulation and its consequent effect on air movements". This invasion continues today.

It may be, as some authors declare, that over-collecting has been responsible for the disappearance of the Large Copper about 1845, although I regard it as only an hastening factor in the process. The reduction of the fenlands by draining, sluices and pumps has undoubtedly had its effect, especially as *dispar* was almost entirely dependent upon one food plant. Small changes in the climate may also have had an effect. The gradual reduction in numbers of the Swallow-tail may also be due to the same causes and it seems probable that our Swallow-tail is nearing the end of its existence, whatever the causes may be. It is almost extinct on Wicken Fen where it was common only a few years ago and at the present time an attempt is being made to resuscitate it there by planting out laboratory-reared specimens.

Attempts at re-introducing the Large Copper have so far failed and the species is only being kept alive on Woodwalton Fen by nursing during a certain period of the year. There are many hostile elements in any area to prevent a new arrival from succeeding in producing a colony or in preventing an extinct species from re-establishing itself but it may be possible after further experiments to restore the Large Copper and enable the Swallow-tail to overcome its present weakness.

But these attempts are costly and would be better carried on by the Nature Conservancy, if the right type of individual is given a free hand. Such work would have a general value and would be much more useful than much of the research work upon which public money has been spent.

I am very grateful to several correspondents who have been good enough to assist me on various points and especially to Messrs. Allan, Riley and Tams, from whom I have had several letters on the subject. I am also grateful to Professor Verity who, through Mr. Allan, has given me help.

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## Some Memories of S. G. Castle Russell

1866-1940

By Colonel S. H. KERSHAW, D.S.O.

*(Continued from page 4.)*

He delighted in instructing children what to look for in the field, how to find insects in all the stages and how to keep and rear them. So long as they showed genuine interest he never tired of answering their questions, which he did wisely, clearly and gently. So it was but natural that children who came under his spell thought the world of him and were for ever asking parents about him and his doings.

Of course like all humans he had his foibles; but they were such as caused more discomfort to himself than to his friends. He could be incredibly obstinate; but looking back, one suspects that this was part of the character which enabled him to build up his professional reputation: once he had thought out a problem and determined upon the line which he must take, nothing on earth would induce him to go back upon his decision. So those who employed him knew that his whole professional experience would be thrown into the balance when difficulties arose and that he would assuredly take undeviatingly the line which that wide experience told him was the right one, no matter how illogical it might seem to be. So the more important of his clients came to place an implicit trust in him, a trust which no one ever had reason to regret.

He had no 'bump of locality'; 'right' and 'left' conveyed little to him and he used them indiscriminately. Nor had he any idea of time. If in deep thought he would pass by his own house, and often, just when lunch was being put on the table he would saunter off to his workshop. But should he have arranged to meet you for a collecting expedition he would be punctual to the minute—always provided that you knew where he was going to meet you and had *not* followed his remarkable directions for getting there! In woods he often got lost: he had a total lack of a sense of direction and owing to this ambiguity his topographical descriptions were frequently incomprehensible. He would send one diagrams—'maps' he called them—of places where such-and-such an insect was to be found; but since roads were often shown on the wrong sides of railways, and vice versa, woods on the wrong sides of ponds and so on, more often than not these 'helps' were of little practical use. In later years this habit of losing himself often caused anxiety to his friends, Major and Mrs. Collier, when collecting with them in such places as Abbott's Wood. The risk of an accident befalling him on these occasions was minimised to some extent by persuading him to carry a whistle; but of course he was never known to use it.

To his generosity there was no end. Colonel Burkhardt writes: "I think his generosity was one of his strongest points. His information was always at anyone else's disposal and he gave exaggerated prices for 'vars.' caught by amateurs, especially if he thought the captor was hard up". Allan writes: "When staying with him I had to be careful what I said about local insects; for if he had even a suspicion that I wanted to breed a certain species he would go to great trouble to pro-

cure it for me, sometimes making long motor trips later in the year, or even the following year, to find and send me gravid females or eggs or larvae".

Mr. A. W. Richards pays a remarkable tribute to this side of his nature. "In 1926", he writes, "I met him in his beloved Ewshot woods when, typically, he took me, a stranger, to a spot at Bourley where he had put down 300 *athalia*, so that I could get some. He was most kind to me when I was a beginner . . . He never condescended to a less experienced collector, in fact was ready with praise. He always seemed to trust me and never withheld a locality. Later he began to purchase 'vars.' freely and I let him have anything he fancied. He was very generous . . . I sold him a fine *V. cardui* exactly similar to the one in 'South' from the Clark collection. This was after he had sold his collection though he did not tell me. He gave me £10 for it and it was characteristic of him that it went to Tring for £5 . . . Later I wanted to give him things to complete his collection, e.g. a *C. crocea* var., an *A. paphia* and the largest *A. aglaia* he had ever seen. He usually insisted on payment but sometimes gave me a book. He always let me use his wonderful books. He was transparently honest . . ."

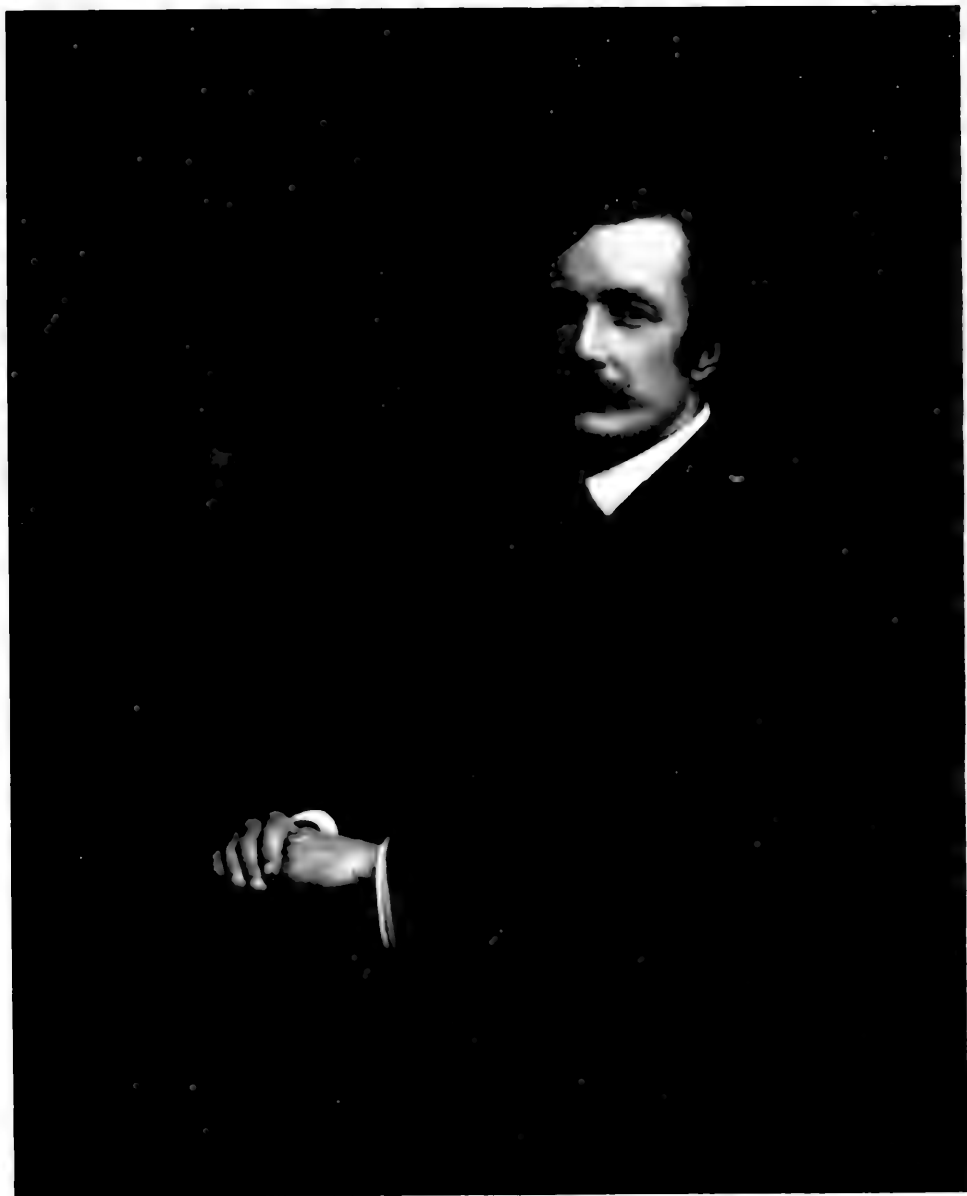
C.R. had a fine entomological library which included the original drawings by Buckler for his Larvae, and one of the few perfect copies of Hübner, which was valued for insurance during World War II for £300; the most recent price asked for it is £1250! Others were the 9 Volume Tutt, F. W. Frohawk's Butterflies with all the hand-coloured plates, a Curtis and a Sowersby Botany, costing £41. C.R. gave away or sold some of these during his lifetime.

When he was established as a leading electrical engineer in London, before the days of motor cars, he used to bicycle incredible distances when collecting; he thought nothing of cycling from Woking to the New Forest, collecting all day and returning home in the dark.

On 31st December 1899, at St. Mary's Church, Strand, London, W.C., Castle Russell married Mrs. Mary Frances Durson of Downton, Wilts. He was then living at South Woodford, Essex. Mrs. Russell was the daughter of Joseph Slade of Talbot Farm, near Bournemouth, and when she became a widow C.R. helped her to wind up her late husband's affairs. Apart from illness their partnership of over 45 years was a very happy one; they were deeply attached to one another and, as might be expected from C.R., everything had to give way to her health and comfort. Mrs. Russell went everywhere collecting with her husband and she soon acquired a wonderful eye for a larva or a *coridon* 'var'.

Castle Russell's elder brother, Arthur, specialised in moths, but once collecting *L. coridon* with C.R. he netted a freshly emerged perfect gynandromorph. In his excitement he cut the var. right through the thorax into its male and female halves, in transferring it from box to killing bottle! Newman repaired it, but when Arthur died C.R. would never show it in his collection, lest someone who did not know its history should dub it a fake, if it came up for sale.

Arthur's elder brother, Charles, who died in 1904, also helped C.R. though not a collector himself; Charles had a daughter, Mrs. Byng, whom C.R. often mentioned in his letters and to whom he was very much attached; he felt the loss of her son, Frank, killed in World



SYDNEY GEORGE CASTLE RUSSELL



War II, as if he had been his own. Mrs. Byng says, "He was the dearest and kindest of uncles . . . my sister and I, as very small girls, were taught by our uncle to spot butterflies and hunt for caterpillars."

In 1930 C.R. was living at Fleet and first met Colonel V. Burkhardt, who—a year later—was responsible for introducing me to C.R.; we had met—each with a net—near Ewshot and he told me of Castle Russell and his wonderful collection.

I had found *T. betulae* fairly common near Gilbert White's Selborne and had the impertinence to ring C.R. up to ask if he knew of this locality. Of course he did. He knew every inch of country for miles round Aldershot, but he was very nice about it and conceived that he was in my debt. Next spring he telephoned, told me that he had put down hundreds of eggs of *A. cinxia* near Ewshot, that the larvae were just coming out of hibernation and I was welcome to take as many as I wanted.

My wife and I were asked over to see the collection. We met Mrs. Russell and so began a friendship in which we exchanged some 500 letters and was only broken by his death. We collected together in many places and he even asked to look at my collection.

I want to bring out how C.R. looked at a collection, however poor: he regarded every specimen as a possible var., and in his mind checked each insect with those in his own cabinets, before he passed on to study the next. He spent 2½ hours over 10 drawers, made some nice comments on the few vars. I possessed and wound up typically with the remark, "I'm glad to see your setting is improving".

In 1932 C.R., Cliff Wells and Captain (now Brigadier) C. G. Lipscomb were hunting *bellargus* at Folkestone without much success although Adonis was swarming, but the only good vars.—one a perfect gynandromorph—were taken, as C.R. wrote, "by two parsons, one of them a youngster who had come over for the day from Chingford, Essex". 'The youngster from Chingford' was the Rev. J. H. Marcon, who in after years was to be one of C.R.'s close friends and amass a collection, which in C.R.'s opinion, equalled, if it did not excel his own.

It had been cold and snowing during the early spring, so C.R. killed time by pike fishing but found the fish unresponsive; he was longing for the butterfly season to begin and had already visited his *aurinia* and *cinxia* breeding grounds.

In the same letter he mentioned the fact that *L. arion* nearly always emerged a fortnight earlier at Crackington than it did at Dizzard and asked if my daughter had located the large race of *aegon* near her school at Tenby.

George Lodge—brother of Sir Oliver, with whom C.R. had worked on a royal Commission—came to lunch and found that they had a mutual friend in the artist, Fred Hall, who made the very clever sketch of C.R. fishing, now, thanks to the kindness of Mrs. Byng and Major Alan Collier, one of my most treasured possessions. It is a tinted sketch of Castle Russell sitting in a punt on a crate labelled 'Billingsgate', degorging the hook from a huge fish. It is dated 23rd August 1895 and may have been a birthday present from the artist, who not only must have studied C.R. closely and for a long time, but also have been very fond of him to achieve such accurate detail; the clothes, pose and intent look on C.R.'s face are perfect. The picture

brings out a well-known habit, that whenever possible C.R. always wore the jacket and cap of one suit and the trousers of another.

C.R. was laid up from Easter to early May in 1933 with gastric trouble, but recovered in time to catch a good *euphrosyne* and breed a lemon-tipped *cardamines*; later in the year he and Mrs. Russell each took good vars. of *selene*.

Next year we met at Blean. C.R. had taken a fine black *athalia* and found some fanatics busy 'smudging' good specimens—under the impression that they were preserving the colony. After seeing one carelessly ruin a good var., he told them not to be so silly.

C.R. hunted *coridon* in the Isle of Wight in 1936 and netted an *alba caeca* and two spotless *semele*, after which he attended Dr. Nash's sale and was struck by the high prices reached in war time. As Colonel Burkhardt says, "A remarkable characteristic of C.R. was his accurate knowledge of the worth of an aberration and of the prices which famous vars. had fetched under the hammer". This faculty was of great value to him when, on Bright's death, he prepared the latter's collection for sale, assessing it for probate at a figure which proved to be within 5 per cent of the sum realised, when the collection was sold.

C.R. had previously helped Bright to re-arrange his famous \*vars. of *coridon*, reducing the number of drawers from 55 to 20.

Early in 1936 Bright had asked C.R. to collaborate with him and Leeds in compiling their splendid monograph on *L. coridon*. This occupied him for 18 months before the coloured plates were satisfactory and it was published, with a foreword by Castle Russell. By reducing the number of named aberrations and retaining many old var. names, C.R. earned the gratitude of the older generation of entomologists. He had gone with Bright on the eve of the South London Exhibition to see the block makers and wrote, "After several efforts, the colouring is much improved; the black and white drawings are excellent—Leeds has spent years on them".

C.R. was busy too, acquiring a new friend and collecting companion—General A. L. Ransome came to lunch and this started a 19-year collecting friendship. The General writes, "Castle Russell taught me all I know . . . once collecting *camilla* larvae in Island's Thorns, Castle Russell found over 50, his wife 17 and I found 1". A fine tribute to C.R.'s ability as a field naturalist and to Mrs. Russell.

A letter of 9th September 1939 is of interest:—

"We made quite a good bag at Shoreham of *coridon*—a green male, *obsoletas* and *caecas*—the best of the last-named is a male with black upper and brown underside like a female; it may be a *gynandro*, but the body is male. The amusing thing about this bug is that it found its way into a tea-cup and laid down and died, until Mrs. Russell spotted it and Burkhardt boxed it. Marcon had remarkable luck here too—a dozen fine vars. and *gynandros* and six green males in *coridon*—and at Eastbourne he netted seven *bellargus* *Ab. radiata* in an area of 300 square yards; he is as Wells says, 'A ruddy Marvel!' I should think his Shoreham vars. are well worth £50".

He moved to Highcliffe this year, to be near his brother Arthur,

\*In his will Bright left these to the South London Ent. Soc. Note letter from Bright to S.H.K.



who had just lost his wife and was in poor health; his first activity in his new house was to re-paper his cabinets with black; he found that it isolated each insect and emphasised individual colours and variation.

(To be continued.)

## The Lepidoptera of Derbyshire since 1926

(Continued from Vol. 69, p. 262)

### Part 3—Notodontidae to Plusiidae

By D. C. HULME

This part covers Heslop's numbers 93 to 568, i.e., his superfamilies *Bombyces* and *Agrotides*. Several of these stout-bodied moths are abundant and probably occur over the greater part of the county. Their true status and distribution, however, is little known as previous catalogues too readily dismissed them as "general", "widespread" and "abundant everywhere". These terms are possibly correct for many species but, on the evidence from full lists submitted recently, prove to be inaccurate for others. One example must suffice: *Philudoria potatoria* (Linn.) was stated simply to be "common" in the V. C. H. Derby list and "fairly common and widely distributed" by Mr. Hayward. The larvae are often abundant, as in early May 1956 when K. Bradbury collected 58 of a greater number seen along the canal bank at Aston-on-Trent (Area 2), though wild imagines are rarely reported. My foolscap sheet for this species is filled with Area 1 and 2 records (there exists also a solitary Area 3 record dating back to 1913) yet not a single occurrence has been noted north of Latitude 53°.

The table will give an indication of our present state of knowledge. Of the group under review, 251 species have been recorded for Derbyshire (a few more may gain admission after investigation by the referees).

Area	1	2	3	4	5	6	7	8
Species	203	165	108	107	141	194	62	78

Only seven species have been noted for all eight Areas and twenty-two for seven Areas. Thirty-six species are recorded, in some cases commonly, from a single Area.

Sugaring and pupa-digging tactics have been employed recently in Area 6 but on a negligible scale elsewhere. To compensate, mercury vapour or blended light traps are now in operation at Repton (Area 1), Littleover (2), Beeley (5), Codnor, Chesterfield and Clay Cross (6).

Mr. Johnson of Clay Cross has kindly allowed me to extract all the records from his 1953-55 M.V.L.T. log book. Two of his captures are additions to the list and several others, a few of which are quoted below, have been retaken in the county after long intervals.

*Cerura bicuspis* (Borkh.). The one caught on 10th June 1953 was the first 20th century specimen.

*Spaelotis ravida* (Schiff.). At least ten since 1953, two specimens having been confirmed by A. L. Goodson of Tring. The only other specimen taken this century was one at sugar in Repton on 30th July 1905 (H.C.H.).

*Hadena conspersa* (Schiff.). Sixteen in the period 1953-55. Previously recorded a hundred years ago by the Rev. H. Harpur Crewe.

*Apamea anceps* (Hüb.) = *Heliofobus sordidus* (Borkh.). Four-

teen taken in the period 1953-55 were the first examples since July 1905 when Mr. Hayward took a singleton at sugar in Repton.

*Celaena leucostigma* (Hübner). A perfect specimen taken on 16th September 1954 confirmed by A. L. Goodson. Mr. Hayward thought that his only example, taken at sugar in Repton on 4th August 1912, was probably a survival of the fen fauna of the Trent Valley.

*Caradrina taraxaci* (Hübner). No less than 43 (one confirmed by A. L. Goodson) have been taken in Mr. Johnson's light trap. The previous record was Mr. Hayward's 1912 specimen at sugar in Repton.

Large catches have been taken at the Repton School trap operated by W. A. C. Bullock and W. K. Henson: on 14th July they took 1,750 *Agrotis exclamatoris* (Linn.) and 1,235 *Triphaena pronuba* (Linn.). Noteworthy records include the taking of *Thyatira batis* (Linn.) in quantity (three on 16th July 1955 and a total of twenty on three July nights in 1956) as here this species is usually taken singly at sugar only and two *Lycophotia varia* (Vill.) = *porphyrea* (Schiff.) on 9th July 1955 (this moth is fairly common on the Central Grit moors but previously has not been reported south of the Trent).

One July or August night's work with a M.V.L.T. at, say, Barlborough in Area 7 and Glossop in Area 8 would boost their respective tallies and provide valuable scientific information. We would be extremely grateful if the gentlemen possessing portable equipment would try an evening's sport next season at or near these places, on their journey northwards to the Lancashire coast and the Scottish Highlands, and publish the results in this magazine.

Fifteen species have been added since 1926.

*Clostera curtula* (Linn.). A larva taken in July 1944 from a poplar at Anchor Church (Area 1) was successfully reared by the Repton School Field Club. Previously reported only from Burton district (probably Staffs.).

*Gastropacha quercifolia* (Linn.). A ♀ found at Heath (Area 6) on 14th August 1951 shown to J. H. Johnson (see *Ent. Rec.*, 63: 301).

*Drepana binaria* (Hufner). Five recent records, the earliest being a ♂ taken in Repton Shrubs on 12th July 1937 by C. I. Rutherford.

*Diacrisia sannio* (Linn.). W. Bilbie found a ♂ at rest on a concrete slab at Palterton (Area 7) in July 1950.

*Agrotis puta* (Hübner). One taken at sugar by M. M. Wilson at Repton on 25th July 1931. The specimen was added to the Derbyshire Entomological Society's collection by Mr. Hayward. The only previous record reported from Little Eaton by John Hill was considered erroneous by F. C. R. Jourdain.

*Ammogrotis lucernea* (Linn.). Dovedale, late May 1931, a moth bred from a pupa (H. W. Daltry).

*Tholera cespitis* (Schiff.). Not noted until 1952 when it was taken commonly at Mr. Johnson's garden light-trap.

*Eremobia ochroleuca* (Schiff.). A single record: Clay Cross, 13th August 1953, one at M.V.L. (J.H.J.).

*Cucullia absinthii* (Linn.). Mr. Johnson has taken eleven imagines at his M.V.L. trap and collected several larvae in the period 1953-56. He had a monopoly of records of this species until R. E. Morris brought me a specimen taken at electric light at his Littleover home on 6th August 1957.

*Panemeria tenebrata* (Scop.). Overlooked in the 1926 list. Recorded for all Areas except 7 and 8.

*Heliothis peltigera* (Schiff.). One was taken at Heanor (Area 6) on 12th June 1947 by Dr. J. W. O. Holmes.

*H. armigera* (Hübner). Clay Cross, 26th July 1953, one bred from a larva in a bag of pears by W. Bilbie.

*Ectypa glyphica* (Linn.). Millers Dale (Area 4), 10th June 1956, one on a grassy hillside (H. N. Michaelis).

*Catocala nupta* (Linn.). The first was taken in 1936 at Derby by F. R. Larkin. Several specimens found in Areas 1, 2, 3 and 6 from 1941 onwards and a single Area 5 record for 1950.

*Tholomiges turfosalis* (Wocke). Whaley Bridge (Area 8), 1951-55, flying in mid-July over boggy heath ground (H.N.M.).

As a postscript on this group a brief selection of other notable records may interest lepidopterists.

*Tethea ocularis* (Linn.). = *octogesima* (Hübner). This species was admitted to the 1926 list on the strength of a single record. Seventeen specimens have been taken in the last five years and all but two were at the Repton and Clay Cross M.V.L. traps.

*Lasiocampa quercus* (Linn.). The race *callunae* Palmer is not shown on B. P. Beirne's map 4 in *Proceedings of the Royal Irish Academy*, 49 (Section B): 56 as occurring in Derbyshire whereas it is found southwards through the county to Breadsall (Area 3).

*Coenophila subrosea* (Steph.). This has been reported as extinct in its fenland haunts since 1851 yet John Hill took one at Little Eaton in 1857 and George Baker recorded one from the same place some years prior to 1885. Both F. C. R. Jourdain and H. C. Hayward quoted these outstanding occurrences without comment.

*Ayxia putris* (Linn.). Always common south of the Trent (e.g., 777 were taken at Repton School in 1956) but there are no other records apart from my own blended light captures in Area 2 and a couple at the Clay Cross M.V.L.T. in 1954.

(To be continued.)

## Collecting Notes, 1957

By W. REID.

1957 was, I think, a fairly normal year for Sheffield. Being so close to one of the most industrialised districts in the country we get more than our share of murky days, but the winter of 1956-57 was a very mild one, the only severe frosts occurring in mid March, a circumstance which probably accounts for the comparatively small numbers of early summer moths in the trap in the garden. I spent several evenings in late April and early May looking for *Alcis repandata* L. larvae, but they were exceedingly scarce this year and I was only able to send three to Dr. Kettlewell, who required them for pairing with Rannoch stock. A warm spell in mid April tempted me to Sherwood Forest, but in spite of the warm sunny days the nights were very cold. Three *Odontosia carmelita* Esp. came to the lamp on the night of 22nd April. The only other species noted were two *Orthosia incerta* Hufn., one *Orthosia gothica* L., and one *Nothopteryx carpinata* Bork., not very productive for two nights' work.

May and early June showed very little improvement. Both *Apatele alni* L. and *Apatele megacephala* Schf. were much more scarce than usual, but two nice *Hadena conspersa* Schf. came in on the 17th June, both females. *Hadena lepida* Esp. never put in an appearance at all! The dark form of *Gonodontis bidentata* Cl. was more plentiful than the type—this was one of the few moths which appeared to have wintered well.

On June 21st, my wife and I went for a few days to Barton Mills, to see if we could find a few *Anepia irregularis* Hufn. Whilst using the portable m.v. set in our trips round the district, we left a trap in the hotel garden for three nights, and took therein several *Heliophobus albicolon* Hb. all somewhat worn, a few *Dypterygia scabriuscula* L., very fresh, one *Apatele aceris* L., and one *Triphaena orbona* Hufn., also both fresh. *Sphinx ligustri* L. was common, as was *Smerinthus ocellata* L. Our first evening was spent at a spot on the road between Barton Mills and Tuddenham. The m.v. lamp brought in very little and nothing of interest, but I took one female *irregularis* flying round some *Silene otites* at dusk. This female laid a few eggs on a head of *Silene otites*, after being kept alive for three nights. More about those eggs later!

On two nights I ran the portable trap on the outskirts of Wicken Fen, plugging in to a convenient electrical supply kindly made available by one of the local inhabitants. The commonest moth was *Leucania straminea* Tr., which was plentiful. Two *Leucania obsoleta* Hb. and one *Meliana flammea* Curt., and several reed leopards managed to get caught, but no *Simyra albovenosa* Göze—an insect which I hoped to get, and no sign of *Earias clorana* L. this time.

An evening spent near Mildenhall on the 25th June was much more interesting, many insects coming to the m.v. lamp, including three *irregularis*, three *Hyloicus pinastri* L., three *orbona*, very fresh, and several more *albicolon*, more worn than those taken at Barton Mills. A ground mist with heavy dew closed down about midnight and put a stop to operations for the night.

On August 12th we took the portable m.v. outfit over to Ireland, arriving at Lisdoonvarna in Co. Clare about lunch-time on the 13th, where we stayed at the Ballynalacken Hotel. Here we were very comfortable, and Mrs. O'Callaghan is well aware of the eccentricities of the moth collecting fraternity. As there is no power laid on (the hotel is about two miles north of the village, on the edge of the Burren) we could not run the portable trap from the hotel, and even had we been able to do so I doubt whether we should have taken anything. In the daytime it was most brilliant, with high wind. This wind seemed to continue for most of the nights, and in spite of running the light in a fairly sheltered place on the north-east side of the Burren, very little came in during the four nights we used it. I do not think we saw more than two dozen moths in all on the sheet. We did take a series of *Luceria virens*, but all of these were taken by searching the grass stems with a Tilley. It certainly seemed to be the commonest insect under the conditions we experienced, but even those were only picked at the rate of three or four per evening. As a result of this, I did not have the opportunity of searching at night for the larvae of the lovely blue form of *Hadena caesia* Schf., which occurs on the maritime campion growing on the coast, but even that plant is not very plentiful. We re-

turned to Holyhead on the 19th, after a most enjoyable, but not very entomologically successful, trip.

My next excursion started on 17th September, when we motored to Stockbridge to collect larvae of *Plusia chryson* Esp., which we found to be scarce this year. After spending a couple of hours beating, and taking a few, we continued our journey to Haywards Heath, staying there overnight and continuing on to Ashford next morning, where we met Mr. Cue. That afternoon we spent near Dungeness Lighthouse, and we found *Calophasia lunula* larvae fairly plentiful. In the evening we ran the m.v. lamp in a fairly wide expanse of Marsh Mallow, and on that night and the following we took about twenty *Hydraecia hucheradi* which seems to be plentiful in the district. A few *Leucania pallens* L. and *Larentia clavaria* Haw. were also noted. We left Ashford on the morning of the 20th to take in Barton Mills again on our way home to Sheffield. We ran the m.v. lamp that night on the outskirts of Barton Mills amongst the tall poplars and, by 10.30 p.m., had taken fifteen very fresh *Cirrhia ocellaris* Bork. Also noted on the sheet were—one *orbona* (almost three months after those taken near the same place in June), one *Aporophyla lutulenta* Schf., a few *Cirrhia icteritia* Hufn., and some other common species which we did not record.

At home the first *Dasypolia templi* Thun. which I have seen in Sheffield appeared in the trap on the morning of 7th October. Another appeared on 14th. After the first appearance, I ran the m.v. on a couple of nights near some quarries about a mile from home, without success so far as *templi* was concerned, but I took a number of *Anchoscelis helvola* L., rather worn but easily recognisable. This is a late date for the species, which is usually fairly abundant on the moors in mid-August. The first two weeks in October were quite productive, numbers of *Eupsilia transversa* Hufn. appearing in the trap every morning. The dark and normal forms are common enough, but amongst them was the first variety I have seen, an obscurely marked specimen which was later photographed at the Annual Exhibition of the South London.

The mild weather continued on into mid November, and during these nights swarms of *Erannis defoliaria* Cl. and *Operophtera brumata* L. could be seen outside the lighted house windows.

And now to the subject of *irregularis* eggs, mentioned previously in these notes, which my female laid on a sprig of *otites*. I counted sixteen of these, and as I had noticed, when setting up my lamps on 25th June, that someone had been using a mowing machine round the edges of the field, I decided to collect a few of the flowering heads of *Silene otites* which had been cut that afternoon to start off my larvae when they hatched. The heads collected from the cut plants in the mown grass were quite fresh and were put into plastic bags and were still quite fresh when my eggs hatched. The young larvae were placed on the cut heads in a plastic container. This is where I made a mistake, because when the time came to change the food and put the young larvae on garden pinks at home, I found that instead of having sixteen larvae I had about sixty, and I found it quite impossible to sort out one species of larva from another. Also, it was a very wet July in Sheffield and as the garden pinks were all rotting on the plants due to the wet, I doubted whether I should be able to find sufficient to rear all the larvae

to the pupa stage. I could only hope for the best. I wanted to sort out my sixteen larvae from the others, so that I could give them my few remaining pinks. I, therefore, turned to "Buckler's *Larvae*", and read that *irregularis* larvae had black spiracles, but I could not find any amongst my sixty odd which had this particular characteristic. All had white spiracles surrounded by a black oval ring, and I therefore concluded, not daring to doubt Buckler, that I had lost my sixteen and acquired a lot of some other species. Yet they looked very like his illustration as they grew older, but still with the white spiracles. To try to clear up the incertitude, my son and I motored to Barton Mills on the August Bank Holiday Tuesday and collected a few larvae from *Silene otites* that night by searching with Tilley lamps. Although we took fourteen, which were about full grown, and which were exactly like those at home, the spiracles were still white surrounded by a black ring. I cannot be completely sure what I have, but as I am informed by Mr. Haggett that any of the shear family larvae found on *otites* are almost sure to be *irregularis*, I rather feel that if and when the moths do emerge in June, I shall find that a further trip to Barton Mills for *irregularis* is not necessary. The only larva of this group that I do know from experience is *Hadena cucubali* Schf.

My supply of pinks, augmented by a few carnations (which the larvae did not appreciate as much as they did the pinks) just lasted out. Garden pinks, collected daily in wet weather, are very moist and great care is necessary to see that no mould is developing. For this reason they should be changed every day at least. I put very dry peat moss in the bottom of all my containers, and I now have some 35 very healthy looking pupae.

## Current Notes

A good deal of ink has been shed at one time or another on the subjects of 'introducing' Continental species into this country and of 'transplanting' local species from one county to another. Of late the only 'introduction' we know of was that of the Large Copper butterfly, bred and 'turned down' at Wicken and Woodwalton fens. This experiment does not seem to have aroused any considerable outcry; but when a London firm of paper merchants liberated some hundreds of Camberwell Beauties in the Home Counties pens flashed from their scabbards. The subsequent letters to the Press pro and con this meritorious and disgraceful exploit are interesting and amusing: there were some who welcomed the prospect of watching a lovely butterfly feeding at their buddleia; there were others who considered that any foreign butterfly, however lovely, caught gorging itself on a British buddleia blossom should be instantly destroyed.

The correspondence—in *The Times*, *The Field*, and of course the entomological magazines—went on for some months and the *dénouement* which chiefly interested the writer of these present lines was the disclosure that so many nature lovers were in the habit of liberating foreign butterflies in their gardens. One of these persons wrote: "I have collected some thousands of butterflies in many parts of the world, and I like to see rare butterflies in my garden. Botanists are not rebuked by the Horticultural Society for attempting to introduce

rare plants, but the Entomological Society wish to deny us the reasonable possibility of meeting with rare butterflies so that their records may be kept in a state of perfection. How many persons are interested in these records (which for obvious reasons cannot be accurate) compared with the number of persons who would rejoice at the sight of a Camberwell Beauty?"

To this argument there could be no reply: for obviously the number of nature lovers who would rejoice at the sight of a Camberwell Beauty on their buddleia must outnumber the entomological record-keepers by some hundreds of thousands. But an interesting sidelight was the avowal by the late Mr. F. W. Frohawk that he himself had been in the habit of 'transplanting' butterflies from one locality to another, having liberated "thousands of specimens of different kinds which I have reared in captivity" and had caught "several dozen" female White Admirals and "turned them down in a wood".

A year or two ago a contributor to this magazine, commenting on the extinction of an insect in a certain county, remarked that he contemplated reintroducing it. Nobody wrote to protest; and indeed the practice of 'turning down' local species in other localities seems to be almost universally practised today. We know of several collectors who habitually 'turn down' butterflies, hawkmoths, pussmoths, cream-spot tigermoths and so on in various localities every year and have been doing so for many years past. The fact that this procedure, so far from increasing the small local population of a species is more likely to exterminate it does not occur to these enthusiasts; for the sudden preponderance of one of the biotic factors of a habitat is usually followed by a preponderance of that factor's predators. The more hosts, the more predators; and the predators do not obediently die out as soon as they have reduced the host population to what they consider should be its proper limits. Even in a welfare state nature is not quite so regimented as that.

Presumably our contributor contemplated importing the insect in question from an adjacent county. But in that county the species is not uncommon locally; so what is the object of the transportation? Collectors who live in our contributor's county can go and collect the insect and return home in an hour or two. Apparently the reintroduction is to be made because the future of the species in that part of England "would seem to be precarious". So what? Is it essential, or even desirable, that the insect fauna of a county or region must be kept (by artificial means) always stable? Must no species ever become extinct? Must no new ones arrive?

What say those of our contributors who are interested in "county lists"? Are they for or against reintroduction? One imagines they are all for it, since the ambition of so many who compile these lists seems to be to include as many species as possible. The most doubtful of insects are often included, and frequently on the most slender of evidence. However, it is likely that collectors will continue to 'turn down' butterflies and moths in localities where the species are



at present unknown for many years to come. Frohawk was not the only one. Castle Russell was constantly turning down the Marsh Fritillary; the late Mr. Antram successfully established the Glanville Fritillary at Sway. *Quot homines tot sententiae*: the saw of contention will be drawn to and fro so long as there are collectors, and insects, in our island.

A correspondent writes:—"I notice you refer in last November's *Record* (*Ent. Rec.*, 69: 241) to the impending destruction of a large part of Savernake Forest. Surely this is a case where the Nature Conservancy ought to intervene. They have powers of compulsory purchase and their energies would be better expended in saving Savernake Forest rather than in carrying out soil rehabilitation experiments on the Isle of Rum, which is really within the competence of bodies such as the MacAulay Institute for Soil Research. Cannot entomologists make some impression on the Conservancy? Or are red deer, seals, and sea birds all that matter?"

P. B. M. A.

## Notes on the Tineina

By S. WAKELY

There is no season of the year when some of the Tineina cannot be taken—in one of their stages. In answer to requests I will call attention to various plants, etc., to collect and the species likely to be bred therefrom. Nearly all the microlepidoptera are best collected in larval form and bred later. Many of the species are seldom seen on the wing owing to their sluggish habits, and even M.V. light does not attract them in the same way as it draws the larger moths. There are exceptions, of course, but many even common species are rarely if ever taken at light. Also, micros are so frail that even when taken by net or at light, they are frequently rubbed and worn and difficult to determine. By getting to know the various foodplants and the time of year to search for larvae or collect seedheads, stems, or roots, many local species can be found and lovely series obtained.

*February*.—All five species of *Metzneria* can be bred from material obtained this month. *M. littorella* Dougl. must be one of our most local species which still occurs in a few fields and on cliff sides near Ventnor, Isle of Wight. It was taken only last year by Mr J. Lobb in its old locality, so still holds its own. By collecting the seedhead stems of *Plantago coronopus* (bucks-horn plantain) numbers of the moth can be bred during June and July. The larva feeds in the stem. The stems are not easily seen, as they get beaten down and splashed with mud during the winter storms. The other four all occur in seedheads—*M. lappella* L. on *Arctium lappa* (great burdock), *M. carlinella* Stt. on *Carlina vulgaris* (Carlina thistle), *M. metzneriella* Stt. on *Centaurea nigra* (black knapweed) and *Serratula tinctoria* (sawwort), and the local *M. neuropterella* Zell. on *Centaurea nigra*, *C. scabiosa* (greater knapweed), etc.

Three species of *Aristotelia* occur also in seedheads. These are *A. bifractella* Dougl. on *Inula conyzia* (ploughman's spikenard) and *Inula crithmoides* (golden samphire), *A. inopella* on *Pulicaria dysenterica*



(common fleabane) and *Inula crithmoides*, while *A. brizella* Treits. can be found on *Limonium vulgare* (common sea lavender). When collecting seedheads for the latter species those matted together should be chosen. *A. brizella* is particularly common on the salterns of the River Crouch, Essex.

Towards the end of the month—and later—larvae of *Phthorimaea tricolorella* Haw. can be found in spun terminal shoots of *Stellaria holostea* (greater stitchwort). Careful searching is required as the feeding places are not very conspicuous, although often betrayed by the whitened leaf-tips. I have reared this species in numbers by placing the larval spinings in a flowerpot or jam pot containing two inches of fine soil and introducing a few fresh sprigs of the foodplant weekly. They are usually full fed in about three weeks. During the period the moths are due to appear the pots should be examined at night when any moths that have emerged will be visible on the linen top. During the day the moths are very sluggish and hide in the debris.

An interesting Gelechid larva to be taken now is *Thiotricha subocellea* Steph. This species makes a portable case of dead florets of *Origanum vulgare* (marjoram) and occurs freely on the Surrey downlands. By examining the heads of the marjoram the cases can often be detected as they protrude slightly above the fairly level surface of other seeds. These seedheads—and this applies to others previously mentioned—are best kept in linen bags exposed to the weather but sheltered from the sun. Hung on a fence or wall facing north is ideal, and it is advisable not to have them too high or they will get too dry.

Two species which can be bred from dead flower stems might also be mentioned, namely *Douglasia ocnerostomella* Stt. on *Echium vulgare* (viper's bugloss) and *Goniodoma limoniella* Stt. on *Statice limonium*. The latter can be collected at the same time as *Aristotelia brizella*, and a pair of scissors will be found very useful in snipping off the stems.

Some leaves of *Rubus fruticosus* (blackberry) can be found still on the brambles at this time of the year. The white blotches made by the larvae of *Tischeria marginea* Haw. can be collected all through the winter. This species pupates in the mine. By holding the leaf up to the light it can be seen if the larva is present. An opaque round blotch indicates it has pupated, but many mines will be found to be uninhabited and should be discarded.

Most authorities place the Sesiidae (clearwings) among the Tineina and February is quite a good month to look for the galls of *Aegeria flaviventris* Staud. on sallow stems. It emerges in the even years only, so should be searched for this year. The Surrey commons and woodlands are usually quite productive. Branches about a pencil thickness in size should be examined carefully by running the eyes up and down them from various angles. Sometimes the galls or swellings are quickly spotted. Extra thick stems usually produce the Longicorn beetle, *Saperda populnea* L.—a handsome species, but rather a disappointment if one is expecting the Clearwing. The moths emerge in July, seldom before, and usually in the first week. The stems should be cut with secateurs so that there are several inches above the gall and at least six inches below. It is best to insert the cut stems in

earth and I always place mine under gooseberry bushes, where they are safe from cats and get some shelter from the sun when the leaves appear. They can be brought indoors and placed in a glass cylinder during the last week in June. Only a very small percentage of the stems produce moths—two or three from a score of galls is quite normal.

When breeding micros a tremendous lot depends on the care given to the material collected, and a constant watch has to be kept to ensure the right conditions are maintained. A sudden burst of bright sunshine on a bag of seedheads in winter can kill all the larvae by excessive dryness. When using flowerpots, these should be sunk into the ground to stop evaporation.

It is one thing to recognise a particular plant when the foliage is fresh or the plant is in flower, but quite another to spot the same plant when only dead stems and seedheads are visible. However, one soon learns with practice what to look for.

## Field Work

*(Continued from page 25)*

For some years the writer kept his pupae throughout the winter in an outhouse. It was an ancient structure built entirely of wood and exposed to the weather on all sides. The roof was somewhat leaky. The pupae were removed from the pupating-troughs in November, laid 'face downwards' on corrugated cardboard on the floor of an observation cage, and the cage put in the aforesaid outhouse. Pupae did well there: the damp atmosphere prevented them from drying up (perhaps the damp corrugated cardboard helped), and the building was sufficiently well ventilated to prevent any growth of mould. The moths emerged as one expected them to, and it was rare to breed a cripple.

Then the war came and the pupae had perforce to be wintered in a cellar. The same practice was adopted, for the cellar was not 'bone' dry and the air was still. Again there was no reason to complain of non-emergences. But a year or two later the only place available for the improvised pupa-cage was a draughty unoccupied flat over a range of stabling, and here there was cause indeed to complain. An appreciable percentage of pupae failed to result in moths, and upon breaking open the dead ones it was plain that they had simply dried up. He had failed to prevent, throughout winter, loss of water by evaporation.

In some of the modern text-books on larva-rearing we are advised to keep our 'bare' pupae (that is to say those which are unprotected by a natural cocoon) during the winter in small closed tins having tightly-fitting lids and to keep the tins in a cellar or some other cool place. This procedure, it is alleged (and rightly), prevents the pupae from losing water since they are in a 'confined' atmosphere and thus protected from moving air. But the writer does *not* recommend this procedure, and since it would be presumptuous of him to deprecate a practice advocated by wiser (though perhaps not more experienced) lepidopterists than himself, he had better relate his experience during the winter following that disastrous happening in the flat over the stable.

This next winter, then, it was decided to adopt the plan of keeping

pupae in small closed tins, and after the tins had been dipped in boiling water to sterilize them, and duly labelled with the names of the species they were each to contain, the bottom of each tin was covered with pupae, the lids closed, and the tins placed inside a large square biscuit-tin, which was deposited on a shelf in a cellar.

Having done this, no more was thought about the pupae until towards the end of February, though during the preceding autumn certain qualms had arisen for reasons to be mentioned presently. When the tins were opened on 27th February to see how the pupae were getting on, most of them were found to be swarming with mites (*acari*) which had been feasting royally upon broods of the Marbled Brown, Lunar Marbled Brown, and Blossom Underwing. But worse was in store. Upon opening a tin containing some twenty Yellow-horned it was found that six moths had already emerged, though not expected to do so until the second week of March at the earliest. They were all very much alive and their appearance, to use a cliché, "beggared description". Their bodies, their undeveloped wings and other appendages, the unemerged pupae and the tin were smothered in a welter of meconium and shed scales. Each unhatched pupa was washed carefully with a camel-hair brush and tepid water; but their spiracles were blocked by caked meconium and only one perfect moth emerged out of the twenty pupae which had been put into that tin. As for the tins with mites, pupa after pupa was found to contain only a reddish-brown dust.

Even that was not the sum total of the disaster. On opening a tin containing cocoons of the Northern Eggar it was found that during the short time which had elapsed between pupation and removal of the cocoons to the tin, a gravid female *Borkhausenia pseudospretella* Stn. had laid its eggs on one of the cocoons; for some five or six grubs had occupied themselves during the winter by eating as many cocoons, and when they had had enough of the cocoons they had started in upon the pupae.

This lamentable result of a first experiment in wintering pupae in small closed tins not unnaturally did not make another convert. In theory it is perfectly sound, and perhaps one might follow it for years without a mishap. But in addition to the above-mentioned risks a certain danger *must* always be present: unseasonable eclosion. It would not be an exaggeration to say that a high percentage of our larger moths has been known to emerge out of due season. The Iron Prominent has emerged in an outdoor pupa-cage of the writer on 4th November; the Pale Tussock often in January; and the entomological magazines contain scores of records of these unseasonable appearances. Whenever such a thing happens inside a small closed tin the experience with the Yellow-horned just related will be repeated.

And what about the pupae which your pupa-digger unearths in October and you are unable to identify, therefore cannot tell when the moths developing within them may emerge? Are these to be put into small closed tins as well? Then how about those species which, if protected from the rigours of winter by the still atmosphere of tins and cellar, will surely emerge from some of these pupae in December and January—the Winter Moth, the Early Moth, the Spring Usher, the Dotted Border, the Mottled Umber, the Pale Brindled Beauty, the March Moth, all of them common nearly everywhere?

How, too, will you manage in the case of those species of which a proportion of the pupae sometimes yields moths in September or October, the remainder going over until the following year? Even if the pupae of these species are put into tins late in the autumn a moth or two may emerge the next day or a few days after one has put the tins away. And if you decide to keep the pupae in their pupating-troughs inside a larva-cage from, say, July until late October on the chance of an autumn emergence, you will be exposing them to the risks already mentioned, chief among them being the chance that they will dry up.

So the reader will understand why at least one breeder of Lepidoptera does not recommend that pupae should be put into small closed tins. Surely it is wiser to keep pupae in some place where they can be looked at two or three times a week throughout the autumn, winter, and early spring months. That great rearer of Lepidoptera Frank Littlewood wisely remarked, "One should never forget one's pupae at any time of the year". One can achieve this requirement and at the same time secure the maximum amount of success by putting the pupae, as soon as they are removed from the pupating-troughs, straight into a Littlewood Pupa-cage.

One of the great advantages of the Littlewood Pupa-cage\* is that it does not seem to matter where, in moderation, it is kept in winter-time so long as it is in a fairly cool place. But it is important that it be kept somewhere out of reach of frost. If it is desired to induce its inmates to emerge during the winter it can be kept in a room indoors; but this of course should not be done if it is intended to use any of the moths emerging within it for assembling. Frank Littlewood, who liked to be observing and setting moths throughout the winter, kept his cage in his sitting-room. An essential requirement is that the water-trough shall always be kept filled. If it dries up, though it be for only a couple of days, some pupae will also dry up. Frost is unnecessary to pupae, and prolonged frosts will kill certain species. The pupae of the vast majority of the British Lepidoptera which overwinter in the pupal stage will result in moths if they are kept through the winter in a low temperature which never falls below freezing-point.

In some of the older text-books and back numbers of the entomological magazines one can read that it is essential to 'damp' pupae either by laying them on moist soil or moss, or by covering them with damp moss—a treatment which seems analogous to putting damp sheets and blankets on a bed because there is a fire in the room and therefore the air is somewhat dry. Sometimes it is even recommended that when the normal time for eclosion arrives one should sprinkle the covering moss with water or stand the receptacle containing the pupae out of doors in "a gentle shower". Pay no heed to such advice: one can kill pupae very easily indeed by such treatment. Contact with water is

\*The principles and construction of the Littlewood Pupa-cage were described, with diagrams, in *The Bulletin* of the Amateur Entomologists' Society of August and September 1954 (Vol. 13, No. 164, pp. 77-78, and Vol. 13, No. 165, pp. 90-91). Littlewood and the writer corresponded almost weekly for some years, and between them they designed the cage which, after Littlewood's death, the writer named in his honour. It is without doubt the most successful pupa-cage which has yet been invented.

soon fatal to the pupae of all species of British Lepidoptera. The fen-land kinds which pupate low down inside the stems of reeds or are accustomed to submergence beneath floods or the annual over-flowing of rivers, take precautions in the prepupal instar to prevent any water from coming into actual contact with the pupa.† Larvae of such species as feed on and pupate amongst water plants, such as the China-marks (*Nymphula*), spin water-tight cocoons. Damp material of any kind should never be allowed to touch the majority of the pupae which happen in our cages; indeed it is to prevent this very thing that so many larvae waterproof their cocoons. Larvae which pupate in the ground always select the driest site they can find. For one pupa which one's trowel unearths on the south-west side of a tree we shall usually find twenty on the north and east; for in this island rain comes more frequently from the south-west than from any other point of the compass.

Pupae, then, do not require 'damping' at any period of this stage. But, as has already been stressed—and this is a very different thing—an atmosphere containing sufficient water-vapour to ensure that it shall not absorb water from a pupa is essential to the great majority of species while both histolysis and histogenesis are proceeding. There is another reason too for this precaution of keeping the atmosphere surrounding our pupae damp. In some books it has been written that the Lobster-moth will either die in the pupa-case or emerge crippled unless its pupa is 'damped' for some time before the imago is due to emerge. This is due to a misconception. It is not the pupa which requires humidity at this time but the cocoon. The cocoon of this species—and this applies to some others too—is an exceedingly tough one, almost like thin parchment, and if it becomes dry the emergent moth is either unable to break its way out or is able to make so small a hole only that it damages itself in the process of emergence. This danger can easily be obviated simply by taking a small pair of sharp scissors and carefully cutting a hole in the cocoon at the head end and large enough for the moth to crawl through. In the wild this larva spins up between two leaves lying on the ground, and there it remains all the winter; consequently both leaves and cocoon are always soft and moist.

†Larvae accustomed to submergence, sometimes for weeks, such as the Large Copper, are in a different case and outside the present discussion.

## Notes on Microlepidoptera

By H. C. HUGGINS, F.R.E.S.

*Tortrix postvittana* Walk. Mr. George Oliver, son of the veteran collector and breeder whose work has done so much to enrich our collections with aberrations of British butterflies, recently submitted two specimens of this moth to me for checking. Mr. Oliver, who I am glad to say is now beginning to study the micros, bred these and others from larvae he found very commonly at Newquay, spinning in the flower-shoots of red valerian. So far as I know this is an entirely new foodplant; the larva had been found commonly in that district on *euonymus* and occasionally on privet, and in captivity I have reared it on apple and hawthorn. These imported species seem at times to take

kindly to a new range of foods, which suggests a danger of their becoming pests in favourable circumstances.

*Cacoecia pronubana* Hübn. when first found in England appeared to be attached only to privet. In this district, where it is abundant, I have found it almost omnivorous, though I have not yet seen it on fruit trees and it does not seem to care much for the larger trees. I have, however, bred it from privet, euonymus, berberis, snowberry, scabious, valerian, chrysanthemum and even house-leek. In November my wife cut some late chrysanthemums for interior decoration, and a week or so later I found a nearly full-grown *pronubana* larva which in the house emerged in December. I have no doubt that outside it would have hibernated shortly after she cut the blooms. *C. pronubana* is here either double- or treble-brooded, according to the year. This year we had a brood in late May and early June and another late in September; but in a hot year there are three: in early May, August, and early October.

The *splendidella-abietella* group. These insects are a complete puzzle to me. My late friend William Fassnidge and I were working on them a few years before the outbreak of the war; but I came to no conclusions on the subject and so far as I am aware Fassnidge was in the same position, though his lamented ill-health and early death prevented me from hearing his final views, if any. So far as I can see there are:—

(a) *Dioryctria splendidella* H.-S. The moth known by this name to Barrett, Beirne, and most British collectors is the large, rather brilliantly marked insect with faint shades of reddish in the bands when fresh, which feeds only on spruce cones in this country and is also a not uncommon migrant on the east coast. I see one or two here most years at the m.v., and Mr. A. J. Dewick has seen many at Bradwell (he saw 22 in one night), although here at any rate there are no cone-bearing spruces. I have specimens bred from spruce cones from Lyndhurst and Ummera, Co. Cork, where Col. Donovan bred a good many. Mr. Martin, when working on the group at the Brit. Mus., told me this is the *abietella* of Continental collectors.

(b) Fassnidge had several specimens from S.W. France of an insect which he told me was the *splendidella* of the collectors of that district. It was if anything slightly larger than the preceding insect and had two straight red bands on the wing and appeared to be quite distinct. Fassnidge told me it fed on the bast just beneath the bark of various firs, causing a resinous exudation. I have never seen a British specimen.

(c) *D. abietella* Fabr. The moth British collectors have usually meant by this name is the somewhat smaller grey and black insect with no trace of reddish and rather square-tipped forewings which appears to be exclusively associated with Scotch fir, on which it occurs in most places where there are any numbers of this tree. Although most collectors have seen it there is an anomaly in its life-history. Thurnall bred a lot and so I believe did many other collectors of his time (I bred one myself but most of my larvae died) from larvae found feeding on green cones on Scotch fir. These left the cones in the late autumn and spun a cocoon shaped like the seed-pods of the mallow in which they spent

the winter. They emerged in the spring and without further feeding spun an oval cocoon for pupation. On the other hand many collectors have bred what appears to be the same insect from larvae feeding in twigs of Scotch fir, which continued feeding as late as May and pupated in the larval burrow. Finally, the late Robert Adkin bred several similar insects from old resin-galls of *Evetria resinella* Linn. from Rannoch.

(d). *D. mutarella* Fuchs. Fassnidge had at one time a large number of what appeared to me small specimens of the insect we call *abietella*. I have taken one or two similar ones in East Anglia, beaten from Scotch fir, in recent years. He told me these were the *mutarella* of French collectors. Apart from their small size I could see nothing to distinguish them from our moth except perhaps a slightly more uniform colouration, and one he gave me was submitted to Pierce, who could find no difference between it and *abietella*. As there are no pines or firs near me to-day I have abandoned the problem and hope others may be able to enlighten me or at any rate follow it further.

## Practical Hints

February is perhaps the worst month of the year for the field entomologist. Spells of hard frost occur more frequently in this month than in any other, and this makes pupa-digging impossible. Still, there are certain activities than can be pursued. Once, while walking through a frost-bound wood which was a good locality for *Brephos notha* L., the writer broke off some dead twigs from an aspen. One of them proved to have been tunnelled into, and careful search led to the discovery of a pupa of *B. notha* inside the twig.

Larvae of *Diacrisia sannio* L. are seldom found, but a well-known entomologist once discovered a number of small larvae of this species snugly tucked up inside rolled-up birch leaves, in February.

Those who live near a wood in which *Apatura iris* L. or *Limenitis camilla* L. occurs may search for the hibernating larvae of the former on sallow branches and the hibernacula of the latter on the stems of honeysuckle. *L. camilla* larvae seem to favour the thinner growths rather than dense masses of honeysuckle, and the hibernacula hang down from the stem. They are never as large as a whole dead leaf, in the writer's experience. In the middle of April, when the larvae emerge from their retreat, they may be found resting on the honeysuckle stems close to the hibernacula they have left; at this stage the colour of the larva is very similar to that of the stem. Larvae and hibernacula are generally to be found more or less at eye level, and preferably in partial shade along the outskirts of a wood or at the side of a ride: dense shade and bright sunlight are avoided. Honeysuckle growing under a belt of Scots pines along the edge of some of the enclosures in the New Forest often yields a rich harvest, and in Pamber Forest, too, larvae have been found beneath a row of pines.

The stems of *Stachys sylvatica* (Hedge Woundwort) are worth examining in the early part of the year for signs of the internal feeding larvae of *Endothenia nigrocostana* Haw. Similarly the larvae of *E.*



*gentiana* Hüb. may be found in the heads of teasle. If signs of previous feeding are seen on the seed heads of *Daucus carota* (wild carrot) the dry hollow stems should be split open to find hibernating larvae of *Lozopera francillana* Fabr. Roots of tansy may be dug up to reveal the larvae of *Hemimene saturnana* Guen. Infested roots should be "forced" to produce the moth quickly.

## Notes and Observations

ARICIA AGESTIS SCHIFF. AB. GRAAFII.—It is extremely interesting that a specimen of this form of the brown argus has been taken in Wiltshire. Like Mr. A. E. Stafford, I believe this to be the first record from the South of England, and this knocks the bottom out of an inference which I drew from its occurrence in the North of England in a paper which I wrote on this species (*Ent. Gaz.*, 1954, 5: 3-8). But I question Mr. T. W. Jefferson's suggestion that this form is not genetical in character. I have taken four specimens of ab. *graafi*, all with the lunules of a dirty white and very slightly straw-coloured tinge, in a restricted colony of *A. agestis* in the Morecambe Bay area, the dates of capture being 25.vi.49; 29.vi.50; 28.vi.52; and 29.vi.54.

I usually pay about two visits to this colony each year and I know of no other entomologist who visits it regularly, so in all probability other specimens of ab. *graafi* have occurred in the years during which I have had the colony under observation. At any rate the above dates suggest to me that there is a genetic factor at work, for it is clearly a form which, at any rate in this particular colony, recurs regularly.—Rev. J. H. VINE HALL, Hutton Roof Vicarage, Westmorland. 18.xii.57.

ARICIA AGESTIS SCHIFF. AB. GRAAFII HUELL.—The recent notes concerning this striking aberration and Mr. T. W. Jefferson's reference to the late Mr. A. E. Wright, who captured specimens of ab. *graafi* near Grange-over-Sands 1940-1942, prompts me to recall my own captures.

Writing from memory, I think it was early in June 1945 that I met Mr. Wright by chance in one of his favourite collecting localities near Grange-over-Sands. A heavy rainstorm drove us to the shelter of some trees and we had, to me, a most interesting conversation. I remember Mr. Wright laughing when I told him I had spent most of the week looking for wood whites. He said if I found one I must let him know, for the species had been supposedly extinct there for about twenty years. This was a heavy blow, for did not every butterfly book mention Grange-over-Sands as one of its localities? Moreover, I had purchased a guide book published by a local stationer which, in its exposition of the neighbourhood's attractions, mentioned that the wood white was to be found in Eggerslack Woods. It had not occurred to me that the stock of guide books might have taken twenty years to sell out.

I next went to Grange-over-Sands for a holiday in 1953, and during the course of my stay visited the locality where I had met Mr. Wright. A few *agestis* were on the wing and one was casually netted as it flew by. Examination showed it to have some obsolescence of the underside spotting which led me to catch and examine others. Soon I had netted a nice female ab. *graafi*. In the evening of the same day I returned to



see whether I could find *agestis* at rest. About a dozen were detected on grass stems and amongst them was a male ab. *graafi*! This red-letter day was 3rd July.—T. D. FEARNEHOUGH, 13 Salisbury Road, Dronfield. 20.xii.57.

ARICIA AGESTIS SCHIFF.—Having reference to the white and the yellow lunuled forms of *A. agestis* abs. *graafi* Huell and *pallidior* Obth., in the course of a lifetime's collecting in the South I have met with the yellow form some half dozen times, but never with the white form, which goes to corroborate Mr. Stafford's views as to the rarity of the latter. Even fewer bleached specimens, however, have come my way, and of these one from Swanage in May 1957 had red, orange, yellow and pearly white lunules somewhat promiscuously arranged, and this would seem to bear out Mr. Jefferson's contention that the cause of pale lunules is bleaching and is not genetically influenced.

In north west England (Grange-over-Sands) I took two ♀♀ in July 1947 having lunules which could be described as creamy or yellowish white and straw coloured respectively. The first-mentioned seemed to have been on the wing rather longer than its companion, which might account for the slight difference in coloration. The other has a white surround to the fore wing discoidal spot and appears to be of the "hybrid" race termed *artaxagestis* by the late Prof. Wright. I believe that neither ab. *artaxerxes* nor the *artaxagestis* forms occur elsewhere than in Scotland or North England, in which case it occurs to me that to name the two above specimens ab. *pallidior* Obth. is inappropriate.—K. W. SELF, 53 Earls Avenue, Folkestone. 30.xii.57.

PTHORIMAEA OPERCULELLA ZELL. IN KENT.—I took a specimen of *P. operculella* at my house on 7th July. It is a fresh ♂ and is unlikely to have been imported as I grow my own potatoes and store them in a garage near the house, and the presumption is that it was bred locally. The determination has been confirmed by the kindness of Mr. J. D. Bradley.—Col. E. SCOTT, "Suomi", Westwell, Ashford, Kent. 16.xii.57.

[This record is of interest as it had been supposed that our climate would preclude this insect from establishing itself here. It is a troublesome pest wherever it occurs, causing hard brown patches on the sides of the potatoes into which its larva has bored. Our own series came from the East India Dock in London from potatoes imported from Malta in June 1935 and again from similar potatoes in the Regent's Canal Dock, London, in July 1938. In both cases the potatoes were condemned by the Port Health Officer, and the moths were taken flying over the potatoes, and bred from cocoons found on the sacks.—ED.]

HYPERCALLIA CITRINALIS SCOP. (=CHRISTIERNANA L.) IN KENT.—While attending a field meeting of the South London Society at Wrotham, Kent, on 23rd June 1957, I took two specimens of *Hypercallia citrinalis* Scop. Unfortunately, only one of these was set and this was identified by Mr. S. Wakely. Apart from one specimen recorded by J. D. Bradley from East Malling (*Entom.* 88: 63) these examples are the only ones known to have been taken in England this century. In the 1800's it was recorded from Kent at Darenth Wood, Greenhithe, Kemsing, Sevenoaks, Ashford, Shoreham, etc., and Mr. S. N. A. Jacobs tells me that

Tutt used to take it at Chattenden. Stainton gives Castle Eden Dean (*sic*) as a locality (*Insect. Brit. Lep. Tineina*, 3: 152 (1854)). Robson says "This very pretty little species was taken by Mr. Sang in Castle Eden Dene on 19th June 1853" (*Cat. Lep. Northumb. Durh. and Newcastle upon Tyne*, 2: Pt. II, 1912). There are no recent Durham records and the species may perhaps be assumed to be extinct in that county.

Recently Langham's single record of *H. citrinalis* from Ballyvaughan, Co. Clare (*Irish Nat.*, 26: 114) has been confirmed by collectors in the Burren (Bradley, *Ent. Gaz.*, 4: 135, 1953) where, however, it is apparently local and hard to obtain (Huggins, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1956, p. 144). It is to be hoped that *H. citrinalis* will continue to exist in Kent as well as in Ireland.—M. G. MORRIS, Selwyn College, Cambridge. 18.xi.57.

**EUCHROMIA LETHE FAB. (SYNTOMIDAE) IN ENGLAND.**—On 26th October 1957 I exhibited at the South London Society's exhibition a specimen of *Euchromia lethe* Fab. It was found in a local banana warehouse and apparently arrived in this country in a bunch of bananas grown in Cameroons. It was still alive when found but died during the night. It is a most beautiful insect, the eight segments of the abdomen each being of a different colour separated by a thin black band. The wings are black with large chrome patches and small shining green patches. The head is green and blue. I am indebted to Baron de Worms who kindly identified for me at the British Museum.—C. CRAUFURD, Denny, Galloway Road, Bishop's Stortford, Herts. 31.xii.57.

**MOTHS IN WEST HERTS.**—On the last three occasions on which I used the m.v. light, 26th, 27th and 28th November, the temperatures were fairly high, viz., 44°, 45°, and 49° F. respectively, at 10 p.m. There were 44, 44, and 50 moths counted, of which *Operophtera brumata* L. numbered 35, 19 and 18, *Poecilocampa populi* L. 3, 20 and 28. Although a good many *P. populi* had already been seen during the month it was only on 28th November that any females appeared. There were four, and each laid a large number of eggs. The other moths were *Erannis aurantiaria* Hb., 6, *Colotois pennaria* L., 1, *E. defoliaria* 7, *Conistra vaccinii* L., 1.—C. CRAUFURD, Denny, Galloway Road, Bishop's Stortford, Herts.—31.xii.57.

**A WEEK-END IN SUSSEX.**—I stayed with my friend, Mr. D. A. Odd, at Buxted in Sussex from Friday evening, 20th September, till Monday morning, 23rd. At the m.v. light sheet in his garden on the 20th, twenty-nine species of moths appeared, of which the least common were *Epione vespertaria* Fab., *Asphalia diluta* Schf. and *Citria lutea* Strom. On the evening of the 21st *Phragmatobia fuliginosa* L. and *Ennomos autumnaria* Wernb. occurred among about 36 species. In the afternoon of the 21st we visited the Crumbles at Eastbourne and saw (with *Vanessa cardui* L. and *Plusia gamma* L.) one *Colias croceus* ab. *helice*. This was the only representative of *croceus* I have seen this year. At a certain point along the road between Worthing and Eastbourne, many nests of *Euproctis chrysorrhoea* L. were seen on blackthorn. Though the hawthorn was searched no nests were found on it.—C. CRAUFURD, Denny, Galloway Road, Bishop's Stortford, Herts. 31.xii.57.

LEPIDOPTERA IN DORSET.—June 17th was my best night with the m.v. when 53 species arrived including one *Mimas tiliae* L., two *Laothoe populi* L., three *Deilephila porcellus* L., five *D. elpenor*, one *Leucoma salicis* L. (my first at Upwey), one *Arctia villica* L., one *Pyrria umbra* Hufn., one *Polychrisia moneta* Fab., and two *Comibaena pustulata* Hufn. Between 19th July and 6th August ten *Lithosia quadra* L., including one ♀, were recorded compared with 26 in 1956. On 26th July one *Leucania straminea* Tr., and on 27th September one *L. l-album* L., were taken. I was very surprised to see these so far from the coast (3 miles).

On 15th October one *L. unipuncta* Haw. gave me another species for my cabinet, and between 10th and 24th October fifteen *Rhizedra lutosa* Hüb. of the very large form were recorded compared with one in 1956. From 4th to 25th October fourteen *Eumichtis lichenea* Hüb. were recorded at one of my house lights, but I never saw one at m.v. I wonder whether anyone has had the same experience.

On 24th October one ♀ *Ourapteryx sambucaria* L. was recorded. I have never seen one so late in the year and I should be interested to hear whether second broods of this species are common. *Amathes c-nigrum* L. and *Plusia gamma* L. were very numerous this last autumn and reached a peak on 20th September when I counted over 100 of each on the sheet alone and there must have been at least that number on the grass.—Brigadier H. E. WARRY, Eastbrook House, Upwey, Dorset. 2.i.58.

COLLECTING IN LINCOLNSHIRE, 1957.—In the July/August issue Mr. Jackson refers to the disappearance of *A. paphia* and *E. aurinia* from Skellingthorpe woods near Lincoln and certain other haunts. *E. aurinia* certainly has not been seen for several years though, as far as I can discover, no one has visited its former haunt near Market Rasen this year. *A. paphia* has been found by Mr. Jeffs of Grimsby in Bardney wood this year and it also occurs at Skellingthorpe. Both of these localities are to the north of Grantham. I made one attempt to find *Strymonidia w-album* in a spot near Ancaster but with no result and I have not heard of it being found lately. *Thecla betulae* was again found by Mr. Kirk in a wood near his home and I found *Zephyrus quercus* on a tree in a wood near Gautby where I had never seen it before.

I can find no reports of any migrants. Certainly I have seen nothing myself. Canon Houlden remarks on the scarceness of *Vanessa io* this year and the increase in numbers of *Pararge aegeria*. *Polygonia c-album* has been very scarce indeed and *Liminitis camilla* has not been at all plentiful. Once again I have noticed no female *E. cardamines*. The first male I saw this year was on 23rd May, three weeks later than in 1956. In Easter week I visited friends near Cambridge and was delighted to see *C. argiolus* flying in a churchyard near Cambridge and in a garden of the town. We keep hoping for better things but the conifers recently planted in my nearest wood grow apace and one tends to think that the time is short.—Rev. PETER HAWKER, Gautby Rectory, Lincoln. 20.xi.57.

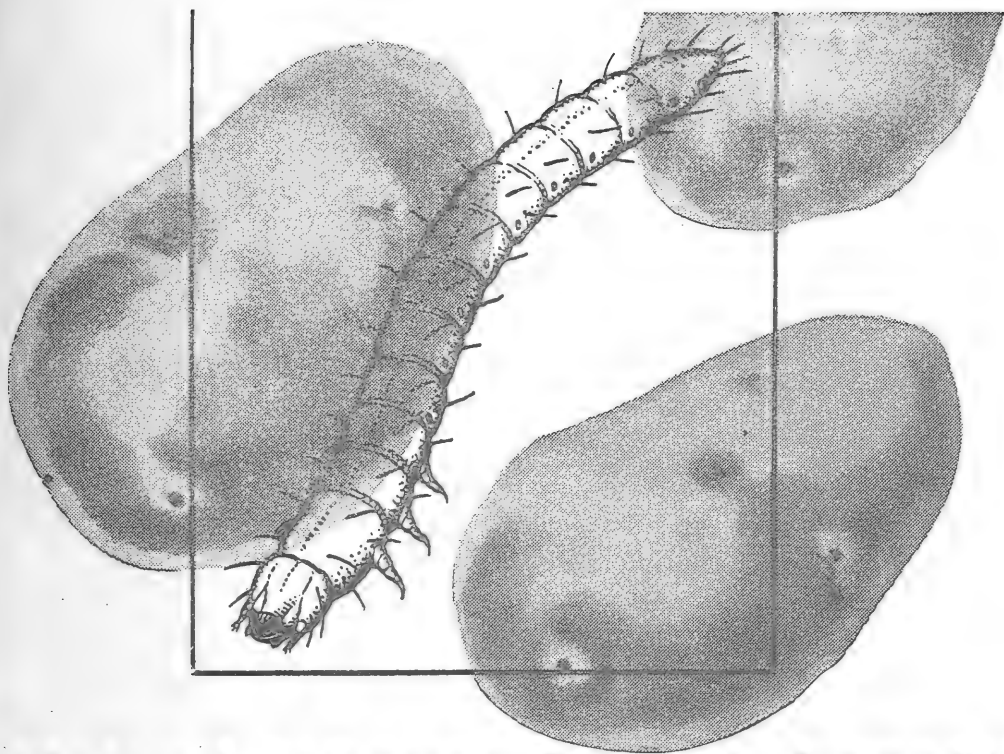
STRANGE BEHAVIOUR OF *EREBIA AETHIOPS* ESP.—I was quietly sitting in brilliant sunshine about midday on 2nd August 1957, on the lower slopes of Craigellachie, at Aviemore, when a ♂ *A. aethiops* alighted on

my left hand and immediately started to run its proboscis all over my fingers. I could not move my hand sufficiently to see my wrist watch for fear of disturbing the insect, but it was certainly there for about ten minutes. It then flew to a nearby rock and appeared to be decidedly uncomfortable! It returned after a few minutes to my right shoe, but after finding this uninteresting, it walked on to my sock and thrust its proboscis repeatedly through the wool to my skin. My friend, P. Le Masurier then came up and saw what was happening and we both watched the insect for several more minutes and then had to urge it to move away because we were getting late for our midday meal. We left the butterfly sitting on the nearby rock looking more uncomfortable than ever! One is somewhat too familiar with flies behaving in this fashion, but I have never before been treated to such attentions by a butterfly.—Rev. J. H. VINE HALL, Hutton Roof Vicarage, Westmorland. 18.xii.57.

[The habit of seeking "enriched" moisture is noticed more particularly in warmer climates, but the Satyridae are more strongly imbued with a taste for human sweat than most families and we well remember a *Satyrus circe* which remained on our spectacles, regaling itself on the sweat of our brow, while we were making unsuccessful passes at another of the same species one sweltering July afternoon above Digne.—ED.]

SOUTH WESTMORLAND IN 1957.—A very poor season is drawing to a close, and this seems to be in agreement with reports from the length and breadth of the country. It was a mild and wet winter, and it would seem that a cold dry winter is far more beneficial to hibernating insects, in whatever stage they pass the winter. I recorded 227 species of moths from Hutton Roof (macros only) in 1957, all but half a dozen of which came to my m.v. trap. The trap has been in operation for six years and my numbers for previous years are as follows:—1952, 258; 1953, 270; 1954, 232; 1955, 251; 1956, 273. It will be seen that the 1954 figure is nearly as low as 1957, but there were far more individual insects seen in 1954, the general level of plenty being much higher. This year, not only has the number of species been low, but the number of individuals of each species seen was quite phenomenally small. An unwelcome exception to this was *Triphaena pronuba* Linn. Nothing ever seems to reduce the numbers of this species! It should be mentioned that butterflies were also in very small numbers here this year, the normally commoner and more widespread species being far more adversely affected than the more restricted and local species.—Rev. J. H. VINE HALL, Hutton Roof Vicarage, Westmorland. 18.xii.57.

PROFESSIONAL COLLECTORS.—Can any reader give me information about the following professional collectors who were collecting in various parts of England and Scotland and selling set specimens of Lepidoptera between 1840 and 1848?—Heppenstall of Sheffield; G. Whitwell of Peterborough; Catchpool of Colchester; Walford (collecting in Scotland in 1846, but apparently living in Essex); Noye of Penzance; Thomson of Lewes, Sussex.—P. B. M. ALLAN.



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## **EXCHANGES AND WANTS**

*Cambridgeshire Lepidoptera.*—Records wanted for new County list in preparation. Butterflies, Pyralids and all Chippenham fen records particularly wanted. Full acknowledgment will be given.—*Brian O. C. Gardiner, 43 Woodlark Road, Cambridge.*

*Wanted.*—Second-hand Robinson type mercury vapour lamp trap.—*J. M Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent.*

*Wanted.*—An examination of the Coleoptera section of the General Science Museum at Merchant's Taylors School shows that there are a great many gaps in it. Can any Coleopterist readers of the *Record* assist by sending some of their duplicates?—*G. Lucas, 17 Munden Grove, North Watford, Hertfordshire.*

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Dr. Kettlewell regrets that, due to the fact that he has unexpectedly to go to Brazil in connection with the Darwin Centenary, he will be unable to write individually to the various people who are helping him in connection with the survey of Industrial Melanism. He would be most grateful, however, if they could continue to keep records in his absence of all those species about which he requested information last year. He hopes to be back at the beginning of May.

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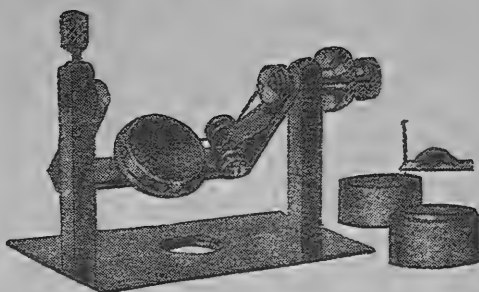
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d'ASSIS-FONSECA, F.R.E.S.

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All material for the magazine should be sent to the Editor

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## The Alps in 1957

By Major W. A. C. CARTER, R.A.

NOTE.—In the following account the nomenclature is based on that used in *Die Schmetterlinge Mitteleuropas* by Forster and Wohlfart, Band II, 1955. For brevity, this book is referred to as 'F. & W.'

In 1956 we spent our leave in the Vorarlberg in Western Austria. This year we wanted to go further east and decided to make for Heiligenblut on the western edge of Carinthia.

My wife and I set forth from Delmenhorst soon after 6.0 a.m. on 22nd June. During the previous fortnight the weather had been perfect, but it was no surprise when we had to switch on the wind-screen wipers before we had driven fifty miles. We stopped for breakfast after passing through Hannover, had lunch in the rather drearily industrial neighbourhood of Hünfeld and it was still raining when we stopped at Ansbach for the night. It was raining again when we moved on next day, driving along the Altmühltal. This is a well-known holiday area in South Germany, rich in walled, mediaeval towns such as Eichstätt and Weissenberg. From what little we could see through the rain and mist, it might prove fruitful ground for the entomologist. At Indoldstadt we joined the autobahn for Munich and, shortly after crossing the Danube, we stopped for coffee in a patch of heathland beside the road. The weather had cleared and, in the hot sunshine, we found *Coenonympha iphis* Schiff. flying with *C. pamphilus* L. and *Clossiana euphrosyne* L.; on privet bloom we saw *Melitaea cinxia* L. and *Strymon w-album* Knoch. We stopped again beyond Munich and saw *Erebia aethiops* Esp. and *Ochlodes venata* B. & G. before everything was blotted out in a fresh deluge of rain.

We came over the Steinpass and crossed into Austria at Lofer. Here, there was a mildly embarrassing incident. Whilst getting our final clearance, I allowed the car to sidle gently down the hill and suddenly found a well-nourished German tourist sitting on the bonnet. He had been standing in the middle of the road arguing with a Customs official, and we had bumped into him from behind. Happily, no damage was done, and we parted with mutual expressions of goodwill.

We had planned to go over the Grosslockner Pass but, on our arrival at Bruck, we learnt that it had been blocked for the past three days and was likely to remain so for another 48 hours. There was no alternative but to take the more roundabout route through the railway tunnel between Bockstein and Mallnitz. Accordingly, after spending the night in a most excellent hotel in the little village of Saalbach, we headed for Bad Gastein. On the way there we saw ample evidence of the recent storms: streams were blocked with heaps of trees and brushwood, piles of rubble lay at the foot of great scars carved out of the mountainside and whole sections of the road had been washed away. At Bockstein (a few miles beyond Bad Gastein) we drove the car onto a railway 'flat' and, at about midday, emerged from the tunnel at Mallnitz to find the whole valley blotted out by mist and steady, depressing rain. The weather improved as we drove down into the main valley and, turning northwards through Winklern, we arrived at Heiligenblut in the middle of the afternoon. The whole journey was a little more than 700 miles.

Heiligenblut lies at about 4,300 ft. above the sea at the head of a

steep, narrow valley and is dominated by the 13,000 ft. Grossglockner. It is a pretty little place which caters almost entirely for the needs of sight-seers on their way to or from the Grossglockner and we soon found that people who stay for more than one night are looked upon as something of a nuisance. That evening, in a brief spell of sunshine, we walked up the hillside and found an encouraging variety of butterflies but before we had been out half-an-hour we were driven home again by more rain.

The following morning it was still raining with a kind of dreary persistence. There was, however, a lull in the middle of the morning and we set off towards the Haritzersteig at the head of the valley. The sun came out at about midday and we found a very steep, flowery slope where there were a number of butterflies. We spotted several *Parnassius apollo* L. and saw *Anthocaris cardamines* L. flying with rather worn *Colias crocea* Fourc. *Erebia albertanus* Prun. was common; *Cupido minimus* Fuessl. was also about in numbers but it was not nearly so abundant either here or, later, at Mals and Lech as it was last year. By far the commonest Blue was *Cyaniris semiargus* Rott. which turned up in great quantities everywhere we went. It showed very little variation except in size and a tendency towards obsolescence on the underside of the forewings; there was, however, some difference in the breadth of the dark margins, those from Heiligenblut being rather narrower than the average. One example from Reschen had heavily suffused forewings. On this day were found two fresh *Maculinea arion* L. and a single *Melitaea athalia* Rott. The most interesting catch was a single male of *Polyommatus eros* O., the only one seen during the whole trip. At that moment, the sun disappeared and it began to rain. We plodded up the path hoping for another bright spell but, after eating our sandwiches under a tree which gave no shelter whatever, we gave it up. We arrived back at the hotel with our teeth chattering and so wet that the hall-porter accused us of having fallen in the river. The rain, accompanied by thunder, continued all that afternoon and, in the evening when the clouds dispersed, the mountains down to 5,000 ft. were covered with fresh snow.

The weather was slightly better the next morning, but it was still far from good and our enthusiasm was somewhat damped when we saw a bus come down from the Pass with a good two inches of snow on its roof. We set off up the Kleine Fleisstal towards the Alte Poche, a *gasthaus* at the foot of the Sonnblick. At about 10.0 a.m. there was a shower of snow after which the sun came out for a short time but, as the path lay mostly through scattered pine-trees, there were few butterflies to be seen. In one open space there were numbers of *Clossiana euphrosyne* L. and some fresh *Pieris bryoniae* O. Amongst the females of the latter there was considerable variation in the degree of black scaling and some strikingly handsome examples were seen. Further on we found a colony of *Aglais urticae* L. which included both larvae and imagines and, at a height of nearly 6,000 ft. there were a lot of very fresh *Vanessa atalanta* L. In a small hayfield were two fresh males of *Boloria alethea* Hemming and a single rather worn *Erebia* was taken. At first glance, this appeared to be *E. oeme* Hbn. but I now believe it to be ssp. *dolomitica* Warr. of *E. medusa* Schff. On a steep, flowery slope overlooking the stream, we found *Coenonympha satyrion*

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Schff. in good condition and a few scattered *Albulina orbitulus* Prun. There were several *Hemaris tityus* L. buzzing about amongst the wild flowers. Here, too, as in most other places, were odd examples of *Dira petropolitana* F., so old that they were barely recognisable. The sun vanished soon after midday and there was little else to be seen but, on the way down, two very fresh *Colias phicomone* Esp. were seen together with some rather tired-looking *crocea*. Half a mile short of home we got caught in another intensely cold storm of rain; we took shelter beside the road and gloomily watched a stream of cars covered with snow coming down off the Grossglockner.

Later that evening, the weather cleared and I spent a short time in the meadows close to the hotel. A few insects were flying in the weak sunshine and I took *athalia*, *semiargus*, *arion* and two *Palaeochrysophanus hippothoe* L., the normal highland form, ssp. *eprybia* O. As I was leaving, I disturbed a roe deer which barked at me and bounded away up the mountain.

On the 27th the weather improved; there was no rain but there was a strong and very cold wind. After an uninteresting walk along the bottom of the main valley, we took an exceedingly steep path up the Gössnitztal. On the way up we found *Erebia euryale* Esp.; they belonged to ssp. *ocellaris* Stgr. in which the band on the forewings is broken up into a series of elongated dashes. Also taken on the way up were *Leptidea sinapis* L. and *Albulina orbitulus* Prun. At a height of about 6,800 ft. we reached a superb little alpine valley opening out towards the north. It was very marshy and wet and there were one or two small fields of uncut hay bright with a riot of wild flowers. In the hayfields there were masses of butterflies, the commonest being *semiargus* and *minimus*, *P. hippothoe* L., and *Heodes tityrus* Poda. The latter were of the form *subalpina* Speyer but, to my astonishment, the former were all of the type form *hippothoe* with strongly-marked purple borders and a dusting of blue scales on the inner margins of the hindwings. They were in first-class condition and were a beautiful sight as they flew up from the long grass. *M. arion* L. was seen and there were some very fresh *Aricia agestis* Schff. Skippers were plentiful and we took *Pyrgus serratulae* Rbr., *P. carlinae* Rbr., and a worn specimen of *P. armoricanus* Obth. There were many *urticae* and *atalanta* but the fritillaries were disappointing, the only representatives being *euphrosyne* and *Melitaea britomartis* Assm. *Pieris brassicae* L. and *P. bryoniae* O. were abundant and, to my great delight, I took a *Parnassius* which turned out to be *P. phoebus* F. *A. crataegi* was also seen. On the side of the valley we came across a colony of *Erebia cassioides* R. & H. At first they were taken for *E. tyndarus* Esp., to which they bear a marked resemblance; they are, however, noticeably darker on the underside and the eye-spots are much larger than in *tyndarus*. Two fresh examples of *E. melampus* Fuessl. were taken—they are rather different from those taken in the Vorarlberg and appear to belong to ssp. *momos* Fruhst.

On the following day we left Heiligenblut. There was a further improvement in the weather and we left in a blaze of sunshine which heralded a spell of intense heat. We headed westwards through Lienz, crossed into Italy at Arnbach and, thence, through Bolzano and Merano towards Reschen. On the way we saw immense numbers of *C. crocea*

and an *Erebia* which was either *aethiops* or *euryale*, and we passed many places which looked excellent for collecting—especially in the valley of the River Drau. We finally stopped at Mals, a tiny village some fifteen miles on the Italian side of the Reschen Pass. We were very fortunate in finding a most excellent *pension* where we were able to live cheaply and in great comfort. Fortunately, too, German is a *lingua franca*, neither my wife nor I being able to speak a word of Italian. From the balcony we had a glorious view of the mountains of the Ortlergruppe, the Stilfserjoch and the Swiss Alps on the other side of the Offenpass. Either Mals or San Valentino (a few miles up the road towards Reschen) would make an excellent base for collecting in this part of the Alps—an area full of interest and with a wide variety of countryside to choose from.

On 29th June we went up to Reschen (5,000 ft.), to the same place as last year. It was scorchingly hot and I was able to wear shirt-sleeves for the first time since leaving home. Most of the hay was still uncut and there was a wealth of wild flowers; the number of butterflies was up to standard but the quality was rather disappointing. As last year, we were met by immense numbers of *Plebeius argus* L. They were in tolerably good condition and appeared to belong to ssp. *alpina* Courv. There were, however, a number that were fresher and larger than the rest; these might belong to ssp. *cleomenes* Fruhst. but it seems unlikely that two such similar sub-species would exist together in the same locality. F & W mention a large, double-brooded sub-species—*austera* Vrtz.—which is said to inhabit the southern Alpine valleys but they do not say how it differs from the others. In the hayfields there were a few males of *Lysandra coridon* Poda and I took one *Agrodiaetus damon* Schff., a very fresh male. *Semiargus* and *minimus* were plentiful and there were a few *agestis*. *Albulina orbitulus* Prun. was fairly common; amongst them was a particularly handsome female with a heavy dusting of blue scales on all four wings. This species seems to be particularly variable on the underside; the illustration in F & W (Taf 26) shows the underside of the forewings with no spots other than the discoidal but there is a form which seems to be equally common with up to six spots in the median row. There were a few *Maculinea arion* L., but they were not so numerous as last year. The only Coppers seen were *hippotoe* and *tityrus*, the latter unusually heavily spotted for what must be the normal highland form *subalpina* Speyer. There was no sign of *icarus* or *bellargus* but I did take one female of *Lysandra icarius* Esp.

Two *Parnassius apollo* L. were taken but they were past their best. Later, when walking up the valley (Langtaufersal), I found *sinapis* in good condition. As last year, the Skippers were plentiful—*Pyrgus carthami* and *P. carlinae* were taken.

Erebias and fritillaries were disappointing. *E. albertanus* was common and there were scattered examples of *tyndarus* Esp. and *euryale adyte* Hbn. The females of the latter are strikingly patterned beneath—in sharp contrast to the males which are dark purplish brown and almost unmarked apart from a varying number of white median streaks. The eye-spots on the upper sides are distinct and have white pupils. There were a few *Melitaea cinxia* L.—a rather pale form. One very ragged *Callophrys rubi* L. was found on a berberis bush.

On the following morning we visited the meadows on the west side

of the Reschen valley, but saw little that was new. *Apollo* was flying in some numbers together with several *Papilio machaon* L. A very fresh male *Heodes virgaureae* L. was taken. The meadows at 6,000 ft. were full of *C. pamphilus* and *Maniola jurtina* was just appearing. There was a marked absence of *icarus* but I took a very good female *bellargus* of the blue form, *ceronus* Esp. In the woods we found both sexes of *Erebia euryale adyte* Hbn. and one female of *E. medusa* Schff. There was also what appeared to be a very small form of *Melitaea britomartis* Assm. We were harried unmercifully by gigantic horse-flies with insatiable appetites. No amount of tobacco smoke had any effect and they treated with contempt the various 'repellants' with which we smeared our arms and necks.

(To be continued)

## Summit Ant Swarms

By C. A. COLLINGWOOD

Observations on the interesting phenomena of ant swarming on mountain tops are given by J. A. Chapman (1957, 'A further consideration of summit ant swarms'. *Canad. Entom.*, **89**: 387-95). This is the mating flight assembly of winged ants often of several species. In Chapman's paper, results from questionnaires sent out to observers at mountain-top fire lookout stations in Western U.S.A. are discussed. The majority of summits observed were somewhat below the tree-line ranging from just over 4000' to over 8000' but were themselves mostly bare. Reports representing no less than 378 swarms are considered. Observers' reports were accompanied by samples of ants in 235 instances and the answers included comments on altitude, size of swarm, time, date, weather and actual location of swarms. There is therefore a considerable amount of information made available to the author, yet surprisingly little advance in our knowledge of this behaviour appears to have been made.

Chapman concludes that summit swarm behaviour involves orientation towards an object prominent on the horizon, a rather lame statement in view of the fact that, as the author himself quotes, Forel in 1874 was well aware of the attraction of prominent objects such as church steeples, tree tops and hill and mountain tops to winged ants of various species on their mating flight, and frequent observations of this sort recur throughout the literature of the past 80 years. However, many of the more interesting observer comments are given and there seems to have been general agreement that the ants' flight was in nearly all cases apparently purposive and not passive, i.e. wind borne. From the quoted statements the flights and actual pairing occurred before noon on warm, dry days of low humidity and little wind. A further point of interest is that the swarms would apparently disperse during the afternoon with the females actually flying away and not shedding their wings at or about the mating station.

Although all the ant samples received were identified to the genus, only about two-thirds were named as to the actual species. These included *Formica subnuda* Em. and *Leptothorax canadensis* Prov. which were in the large majority and are indubitably mountain or upland species with nest sites at or around the same altitudes as the summit



swarms observed. A considerably smaller number of instances involved *Myrmica fractinicornis* Em. also a mountain species and *Pogonomyrmex occidentalis* (Cress.) which is a prairie species but as Chapman points out may nest at high altitudes where there are suitable combinations of slope, exposure and other factors. Determinations were made from ant samples from swarms involving many thousands of the species concerned, but 143 of these samples were not identified beyond the genus, thus losing additional information of probable value. Chapman alludes to the difficulty of making reliable species determinations from sexual forms alone. No doubt this is due to the poverty of existing keys to these castes in American literature unlike that of Europe where positive determinations even of single individuals are possible for a large number of species.

In Britain, flights of individuals of the various *Formica* species have been noted at various times of the day both morning and afternoon, and Donisthorpe (1927, *British Ants*, 2nd Edition) gives an account of the mating of one of the species of the *F. rufa* group at Aviemore in the middle of the afternoon of 15th June 1911. This is one of the very few published instances of the actual mating behaviour of this group of species although flying off the nests by both males and females have often been observed. With *Lasius* and *Myrmica* all available records relate to afternoon swarms unlike those recorded by Chapman in Western U.S.A. which apparently all took place in the mornings. Vast swarms of both *Lasius niger* L. and *L. flavus* F. have been frequently recorded in this country especially in the south where clouds of these ants have sometimes been observed although not necessarily orientated towards any high point. With *Myrmica* species there appears to be a more decided tendency to assemble around prominent objects as hillside monuments, church towers and often chimney pots. Such flying clusters often involve several species and one I have observed in company with K. E. J. Barrett on Eyam Moor, Derbyshire, on the afternoon of 8th August 1955, included males of *M. scabrinodis* Nyl., *M. lobicornis* Nyl., *M. sulcinodis* Nyl. and *M. ruginodis* Nyl., and females of the first species. All the ants were flying in a loose cluster with the exception of *M. ruginodis* Nyl. which were hovering over the ground. According to most observers males and females of this genus meet in the air but fall to the ground where actual copulation occurs. *M. ruginodis*, however, seems to behave somewhat differently in that the sexes seek each other on the ground according to Brian and Brian (1955, *Evolution*, 9: 280-90). These authors observed that the mating station in this species necessitated the conjunction of a vertically elevated marker such as a tree or house and a bare surface nearby, so that paths near trees, etc., were generally used. Their observations indicated that the sexes emerged during the late afternoon of a warm, calm, dry day. In my experience these ants, as also those of the genus *Lasius*, tend rather to fly in warm thundery weather although not in actual rain, and flights often precede a break up in the weather. This would facilitate the interment of the female after mating, in the ground or under stones which might be impossible if the ground were baked and dry.

Records of summit flights are rare on the higher mountains in Britain. Small assemblies of *Leptothorax acervorum* Fab. sometimes occur in such places as I have observed in the Mourne mountains in



Ireland on 26th June 1957, and on several occasions in the Scottish Highlands. One of the most remarkable instances recorded in Britain is the collection of a large number of both sexes of the wood ant, *Formica aquilonia* Yarrow, on the top of Ben Nevis by W. J. Brice (Thornley, A., 1896, *Ann. Scot. Nat. Hist.*, 1896, 165-8). This would be about 3000' above the nearest possible nesting site of this species and in this instance it may be supposed that the large bodied males and females (examples of which are in the Royal Scottish Museum, Edinburgh) were carried up in air currents, since numerous Coleoptera and Hemiptera were also taken at the same time.

It is evident that the fascinating subject of swarming and mating behaviour in ants requires much further study to elucidate the mechanisms involved. The collection of information on the scale attempted by Chapman provides valuable basic information but would be supplementary to the more precise kind of observation of Brian and Brian on the behaviour of single species.

## 1957: A Mediocre Year in Ireland

By RAYMOND F. HAYNES

Although the weather during 1957 was a decided improvement over the previous year yet during the times that I was able to visit the Sister Isle this past season, I was unfortunate enough to come in for too large a share of inclement conditions which caused collecting to be something of an ordeal. Irish weather is notoriously chancy and as it is usually necessary to plan holidays months beforehand, those who venture across the Irish Sea in pursuit of their hobby must perforce be prepared in advance for the various vicissitudes of Irish climate.

My first visit was made during the period 19th-25th May when I spent a week at Killarney. Previous to departure the weather had been none too good but after my arrival at Dun Laoghaire on Sunday morning, 19th May, there seemed to be a change for the better and on my way to Kerry the sun shone bright and warm. The improvement was short lived, however, and having reached Killarney I had but two days which could be called fine. Very little rain fell but the amount of sunshine was small. This year I took over a new Coleman's 500 candle-power paraffin lamp and this was used on three occasions at Muckross and Torc Mountain.

Day collecting proved rather disappointing on the whole. About the only butterfly I saw flying was *Callophrys rubi* Linn. Although text books show the time of appearance of *Venusia cambrica* Curt. as an imago in July, yet I found the moth well out during this week in May. Besides capturing some specimens at light, I found a male at rest on a pine trunk in the National Park near Dinis Cottage. Two other species of moth which are extremely local in Ireland, I was fortunate enough to encounter here in Killarney: *Semiothisa notata* Linn. and *Ectropis consonaria* Hübner. The *consonaria* I noticed at rest high up on a telegraph pole and to box it I had to prop my bicycle against the pole, then climb on to the cross bar and somehow I managed to stand up on this precarious foothold. One afternoon along an unfrequented footpath at the rear of Torc Mountain, I was delighted

to see a cheery little Red Squirrel (*Sciurus vulgaris* Linn.). This little mammal is not frequent in Ireland and I had not observed any in this district since 1938. Larva beating did not prove particularly productive. From large clumps of bilberry growing near Torc Old Bridge, I collected a fair number of looper caterpillars which turned out to be *Lygris populata* Linn.

Nothing by paraffin vapour lamp after nightfall proved by far the most profitable means of collecting. I tried one night in the Muckross Demesne and for this purpose penetrated about two miles from the main entrance, along the track that is used by the jaunting cars which transport visitors to Dinis and back to Killarney via Torc. My lamp was suspended from a low branch of a birch tree overlooking a large expanse of bog in which grew numerous bog myrtle plants, heather, willow and coarse grasses. One of the earliest visitors to my lamp was *Thyatira batis* Linn. followed by a male *Dasychira pudibunda* Linn. and *Colocasia coryli* Linn. The last named species is represented in Ireland by a fine, strongly marked form, rather different from that in Britain. I was very pleased when later two very beautiful forms of *Drymonia ruficornis* Hufn. made their appearance, especially as I had never before taken this particular species at Killarney. Other species noted included *Diarsia dahlia* Hub., *Hadena thalassina* Rott., *Ceramica pisi* Linn. (dark purplish forms), *Jaspidia pygarga* Hufn., *Triphosa dubitata* Linn., *Colostygia pectinataria* Knoch, *Xanthorhoe montanata* Borkh. and several *Selenia lunaria* Schiff.

The other occasion when I tried the lamp was two nights later, but this time I changed the venue somewhat and set up my light on the slopes of the densely wooded Torc Mountain. It was impossible to ascend any great distance and the disadvantage was that the rays from my lamp could be seen by motorists from the main Kenmare road. Fortunately, nobody proved at all inquisitive. On this night many more insects seemed to be flying; I was again rewarded with another fine *D. ruficornis* and shortly after a freshly-emerged *Tethea fluctuosa* Hübn. flew on to the sheet and was promptly boxed. Amongst the smaller fry, *Iodis lactearia* Linn. proved very common, also several *Venusia cambrica* Curt. visited the light.

On the Friday, the day before returning home, I spent the day on the Kenmare road overlooking the Upper Lake and Long Range. I had come prepared with a chisel, hammer and clasp knife and set to work on a convenient birch tree which showed evidence of workings by the Welsh Clearwing moth, *Aegeria scoliaeformis* Borkh. After much hard work I obtained two cocoons, a large larva and a very minute one. The two cocoons ultimately produced two handsome moths some 5-6 weeks later. I was naturally gratified to add this insect to my collection, the first time I have taken it.

The second occasion I visited Ireland in 1957 was in July but by the 13th of the month when I sailed, the weather had become very cold and damp. I stayed for the first week at Dunlewey; a remote little village in a wild part of Co. Donegal. This was my fifth visit here. The hotel where I have stayed is built on the edge of a bog, thus making night collecting an easy matter without having to make a journey to leave habitation behind. As on previous holidays, I paid a visit to a delightful estate known as Glenveigh, some 10 miles away on the old

road to Letterkenny. The place is privately owned and permission to enter must first be obtained from the owner of Glenveigh Castle. The gardens are extremely well maintained and at the time of my visit presented a truly lovely display of blossoms, including rare plants from Italy and New Zealand. A walk of some 2-3 miles along the eastern side of Lough Glenveagh brought me to an ancient oak forest at the western end of the lake. Striking about with a walking-stick I soon dislodged a number of *Perizoma taeniata* Steph. but the moth is notoriously hard to catch in good condition. A fresh female was netted and retained for ova and was subsequently still in good enough state to become a cabinet specimen. The box containing the ova was later accidentally left behind in a Belfast hotel. Although some 7-8 weeks ago I had taken *V. cambrica* at Killarney, yet here it was again in perfect condition. I found two female moths of the species on tree trunks and obtained exactly one egg from each! The larvae hatched and in due course became fully grown in about five weeks. The pupae are now in tins for the winter.

I devoted one day for travelling as far afield as Rathmullan; a pleasant seaside resort on the shores of Lough Swilly. A visit was paid to Hollymount, just outside the town. This consists of a large, densely wooded demesne where old oaks and large beech trees grow profusely. According to one or two books on Irish lepidoptera, there are rumours of *Apatura iris* Linn. having occurred here but I should imagine that these are without foundation. Larvae of *C. coryli* seemed very plentiful. Numerous *Aphantopus hyperanthus* Linn. were flying. My route back to Dunlewey was via Milford, Downings and Port-na-Blagh, which enabled me to see the Donegal coastline to advantage.

Bad weather intervened during the middle of the week and butterflies were scarce. A day was devoted to exploring the sandhills near a little place called Kincasslagh. *Eumenis semele* Linn., *Pieris rapae* Linn., and *P. napi* Linn. were about in fair numbers. A search of bedstraw plants produced ova and larvae of *Epirrhoë galiata* Hübn. Some pods of bladder campion were examined and I extracted a few larvae of *Hadena capsophila* Dup. In the past I have found this species not easy to breed and on this occasion my stock of five dwindled to one but I succeeded in inducing this single larva to pupate safely.

The paraffin lamp was tried out several nights, suspended from a clothes line on boggy ground at the rear of the hotel. The following species were noted: *Notodonta ziczac* Linn., *Lycophotia varia* Vill. (very common), *Amathes baja* Fabr., *Apamea secalis* Linn. (including some fine red forms), *Celaena leucostigma* Hübn. and *Lygris populata* Linn. On the whole moths seemed very disinclined to venture out.

For my second week, I revisited Newport in Co. Mayo, where during the past few years I have made several unsuccessful attempts to rediscover the whereabouts of *Erebia epiphron* Knoch. The weather became even more vile and unseasonable for most of the week. The nights proved very blustery and cool; very few insects seemed to be flying. To make matters worse, a party of itinerant tinkers had set up camp by the roadside not far from the guest house; on one occasion when I walked down the road preparatory to entering the woodlands with my lamp I was accosted by several disreputable looking characters, who wanted money and anything else I cared to give away. Needless

to say I had to give night work the miss for the rest of the holiday.

My most pleasant day was spent on Achill Island, the largest island off the Irish coast. Searching among bedstraw in the sand-dunes near Dugort I found a larva of *Macroglossum stellatarum* Linn., which has not been numerous this past summer. In spite of unpromising weather conditions I made another attempt for *E. epiphron* up the slopes of Nephin Beg. After a sunny morning all of which was spent trekking across the wet boggy ground, which extends for several miles at the base of the mountain, the weather turned very squally. The terrific wind blowing in from the north-west made conditions on the mountain very miserable. After nearly having my net torn to shreds, I returned empty handed.

At the end of the week, I secured but one species which I had not had in earlier years; this was *Epione repandaria* Hufn. (*apiciaria* Schiff.). A female *Selidosema plumaria* Schiff. flushed out of the heather on the way to Nephin Beg laid a considerable number of ova and I hope to rear a series of this moth. Taken all in all, therefore, my visits to Ireland were not conspicuously successful in the lepidoptera field.

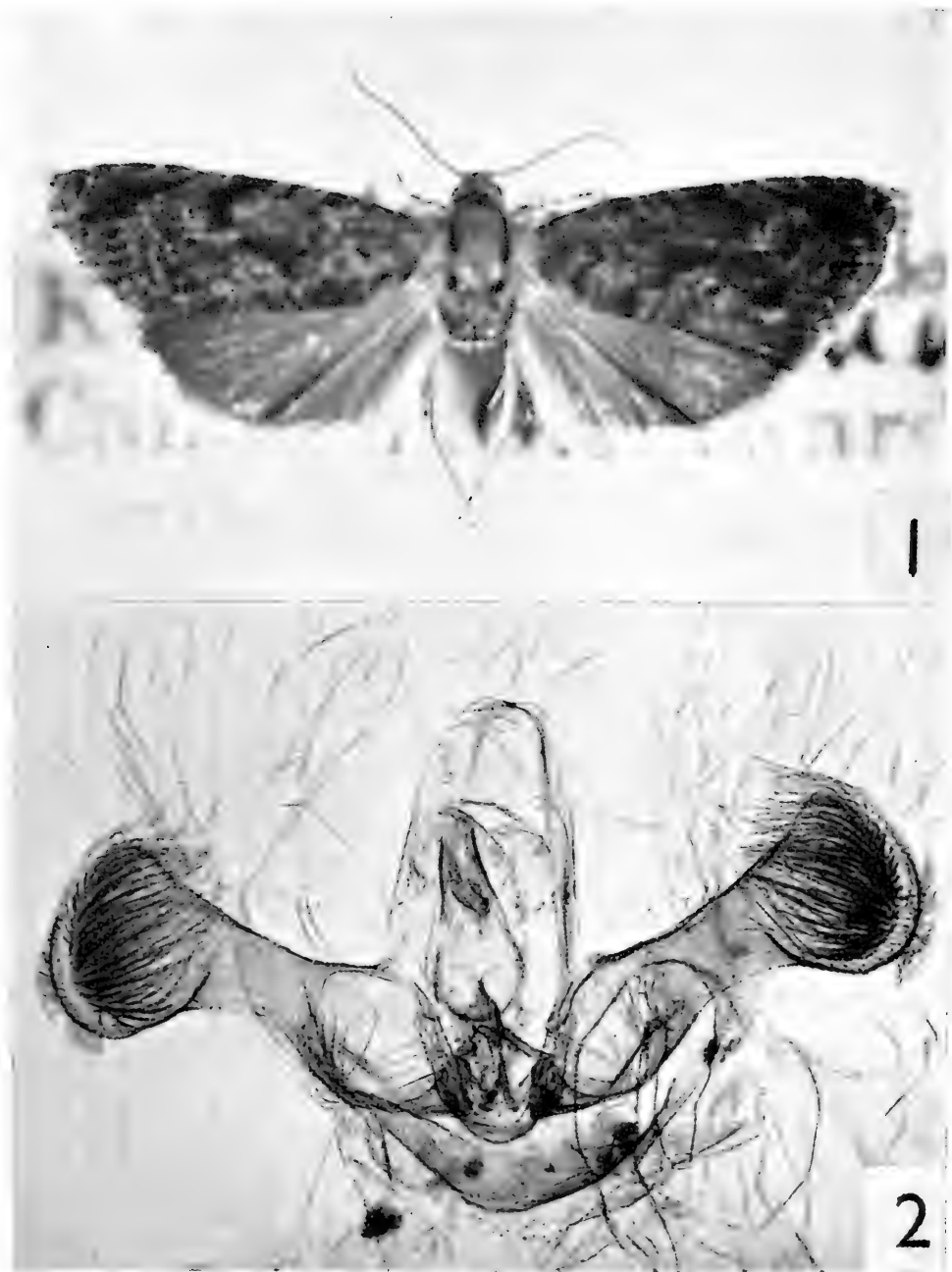
## *Laspeyresia lobarzewskii* Nowicki (*prunivorana* Ragonot)

By Canon T. G. EDWARDS and S. WAKELY

While on holiday at the end of June at Lydd-on-Sea, Kent, we had the satisfaction of taking an example of this moth, which is the first record for Britain. It came to our m.v. light on the 27th June 1957. Not being a species we could recognise on sight, it was boxed; and on a closer examination the following morning it was thought to be either *Laspeyresia rufillana* Westw. or *L. ianthinana* Dup. On comparing it with these moths after it had been set it was seen at once to be different, being slightly larger and having noticeably more elongate wings. The forewings might be described as fuscous and ferruginous in colour, and under a lens are seen to be mottled in various shades of these colours forming a complicated pattern.

On referring the specimen to the British Museum, Mr. J. D. Bradley wrote that the species was thought to be *Laspeyresia lobarzewskii* Nowicki; but as this species was represented in the British Museum collection by a solitary female example, and ours was a male, a definite determination was not immediately possible. However, after obtaining authentic examples of *Laspeyresia prunivorana* Ragonot from a continental museum, Mr. Bradley was able to establish beyond doubt that our specimen was the same as *prunivorana* which is given in Lhomme's Catalogue as a synonym of *lobarzewskii*.

On receiving the information that fruits of *Prunus* and *Cerasus* were the foodplants of the larvae a hurried trip in early October was made to Lydd-on-Sea to find out if larvae could be found in the fruits of blackthorn. Although numbers of sloes were found on the stunted prostrate bushes of blackthorn growing on the shingle near the spot where the moth was taken, no signs of larval feeding marks could be found and a supply of the fruits brought back from the trip produced no larvae, although examined periodically for some weeks.



*LASPEYRESIA LOBARZEWSKII* Nowicki

Fig. 1. A male captured at Dungeness, Kent.

Fig. 2. Male genitalia, ventral view.



It was decided to give the moth to the British Museum, where it now has been added to the National Collection.

We should like to record our thanks to Mr. J. D. Bradley for getting this species determined, and also for the photographs of the moth and male genitalia reproduced on Plate II, Figs. 1 and 2. Thanks are also due to him for the undermentioned references and note.

#### REFERENCES

*Grapholitha lobarzewskii* Nowicki, 1860, *Enum. Lep. Haliciae Orient.*, p. 138.

*Grapholitha prunivorana* Ragonot, 1879, *Bull. Soc. ent. France*, 1879: 132.

*Enarmonia lobarzewskii* Nowicki, Lhomme, 1946, *Cat. Léop. de France et de Belgique*, 2: 446.

*L. lobarzewskii* was originally described from Galicia. The only other records I have seen are from Austria and France.

## A Further Record of *Laspeyresia lobarzewskii* Nowicki in Kent

By H. C. HUGGINS, F.R.E.S.

On 14th January 1958 I visited the British Museum with one or two queries, and after these had been settled I asked Mr. Fletcher to show me examples of *Pammene aurantiana* Staud., as the moth appeared to inhabit a good many places and I wished to be able to recognise it. When he had done so I glanced quickly over the rest of the drawer and my attention was immediately arrested by a single Tortrix, which he informed me was the only known British specimen of *Laspeyresia lobarzewskii* Nowicki = *prunivorana* Ragonot, taken at Dungeness on 27th June 1957 by the Rev. Canon T. G. Edwards and Mr. S. Wakely and presented by them to the Museum. I at once recognised it as a species of which I possess two specimens, taken near Sittingbourne, Kent, on 16th and 18th June 1922.

At that date I lived in a country cottage on the Maidstone road, about two miles from Sittingbourne. It was then in the heart of the orchard country and formed part of a cluster of half a dozen houses known as Chestnut Street. The fruit was sent to market daily in big wicker baskets, which at the end of the season were stored in barns, etc. However, the farmer whose land surrounded my house in 1921 bought a disused army hut and stored his baskets in this. These were not required till cherry-picking in the beginning of July, so that at the beginning of June 1922 I saw the glass windows of the hut begin to become covered with Tortrices, chiefly *Laspeyresia pomonella* Linn.; but there were also a few *L. funebrana* Treits.; so I asked for and obtained the key, to make a daily examination. The origin of these moths was obvious; the full-fed caterpillars had left the apples and plums and spun in the interstices of the baskets whilst these were piled in the railway trucks, and, owing to the unusual storing of these, in a hut with glass windows instead of open doors, the moths had not been able to fly away on emergence. I visited the hut daily for a fortnight and collected, so far as I remember, about 60 *funebrana*, of

which I sent series to many collectors including W. G. Sheldon and Robert Adkin, and also the two *lobarzewskii*.

I showed these later to W. G. Sheldon, who could not make much of them, and then sent them to Edward Meyrick, who reported that they were dwarfed specimens of *L. woeberiana* Schiff. I have never been thoroughly satisfied with this identification, but I placed them as such in my collection. Of course I should have sent them to Pierce for dissection. Both are females and in perfect condition. As a rough guide to the collector they superficially resemble an *ianthinana* of the size and shape of *funebrana*. The moth was first described from Galicia in 1860 by Nowicki; I have not seen this account.

There is, however, a very full account of it by Ragonot, in two papers, one in 1879, *Bull. Soc. ent. Fr.*, p. cxxxii, and the other 1894, *Ann. Soc. ent. Fr.*, p. 216. In the latter it is figured, Pl. I, fig. 8. The figure is a good one, though a little pale for the three British examples.

In Ragonot's first paper it is called *Grapholitha prunivorana* and is described as a new species; in the second as *G. lobarzewskii* Now. = *G. prunivorana* Ragonot.

Ragonot obtained his original specimens from Lafaury, who got them around Dax (Département des Landes) and stated it had also been taken at Vannes by M. l'Abbé L. de Joannis (it appears to have an affection for the Cloth!) and at Rossen by M. Lhomme, so that it was tolerably widespread.

Lafaury informed him that the larva fed in the interior of plums in July and hastened their maturity, causing them to fall. It then left them to pupate under dead leaves. Part of the brood emerged the following June and part in August. I have no doubt that these August specimens are a partial second brood; in both *funebrana* and *pomonella* some larvae pupate immediately and emerge in a few weeks whilst the majority remain unchanged in the cocoon until late spring in the following year. *L. lobarzewskii* very probably does the same.

In addition to a careful description Ragonot gives a few directions for distinguishing it from its near relatives.

*L. rufillana*: Forewings shorter and squarer, entirely marbled with black, purple, or deep violet, and its irregular lines do not form numerous streaks.

*L. ianthinana* has numerous streaks but not so sharp as in *prunivorana*, the fore-wings are also shorter and the tip is fawn.

*L. woeberiana*: It much resembles a little *woeberiana*; however, it is impossible to confound them (shades of Meyrick!) as the bottom of the wing in *woeberiana* is deep orange and it has a small yellow spot in the cilia near the apex absent in *prunivorana*.

I am exceedingly glad to be able to record these two insects as their occurrence in the heart of the Kent orchard country 35 years ago seems to establish that the moth is an indigenous species. It must be remembered that very few collectors have ever obtained a series of *funebrana*, whose larva swarms in most plum orchards, and I have little doubt *lobarzewskii* has been overlooked. The use of m.v. light near a preferably somewhat neglected plum orchard in the Sittingbourne district would almost certainly produce more, though it might be localised, one orchard of an old-fashioned plum at Bobbing produced literally myriads of *T. diversana* Hübn. which I did not see elsewhere.



I left Sittingbourne in May 1923 so did not search the hut again.

I am greatly indebted to the Rev. Canon T. G. Edwards and Mr. S. Wakely for a pre-view of their paper on the original capture, and to Mr. Fletcher of the British Museum for the Ragonot references.

## Lathkill Dale, Derbyshire: An Introduction to its Dipterous Fauna

By P. SKIDMORE

The part of Lathkill dale covered in this paper is that stretch of the valley from the ford at Over Haddon to the junction of the Lathkill with Cales Dale, about two miles upstream. These places and indeed all the places mentioned can be found on the Ordnance Survey One Inch Map for Buxton and Matlock (Sheet III).

The River Lathkill rises near Monyash about eight miles south-east of Buxton, and runs in a more or less easterly direction to Youldgreave. During its course it runs through some very fine woodland above Over Haddon ford and it is in these woods that most of the collecting has been done. For about a third of a mile above the ford at Over Haddon, the valley is only thickly wooded on the southern side, the north side being covered with such typical limestone plants as *Helianthemum* and *Thymus*, the former providing a foodplant for the Forester moths which fly in large numbers over the slope on hot days in June.

The profusion of flowering attracts large numbers of insects throughout the warmer months whilst the abundance of fungi in the autumn provides for various fungivorous flies and beetles.

The floor of the wood is carpeted with *Mercurialis* and this carpet hides hoards of flies and moths. The woods are entirely deciduous, comprising *Fagus*, *Tilia*, *Fraxinus*, *Acer* and *Corylus*.

Apart from the numerous interesting Diptera to be found in this part of the dale, it also houses many insects of other orders which are quite unusual. Beetles like *Phyllobius viridicollis* F., *Dascillus cervinus* L., and *Sinodendron cylindricum* L. are very abundant. On one occasion I took a specimen of the rare longhorn *Stenostola ferrea* Schrank.

*Plecoptera* are well represented and the largest British species, *Perla cephalotes* Curtis, breeds commonly in the river together with the smaller *Dictyopterygella recta* Kempny. and the numerous small *Nemoura* and *Leuctra* species.

Lepidoptera during the summer are very much in evidence and several local species occur there. Notable ones are *Strymon w-album* Knoch, *Thalpophila matura* Hufn., and the striking *Parasemia plan-taginis* L.; but very many others are found in larger numbers than these.

Places referred to in the list:—"Above Over Haddon", the stretch between the ford at Over Haddon and the wood, about half a mile upstream. "Below Mandale Rake", a clearing in the wood at the junction of Mandale Rake. "Opposite Low Wood", the side of the path from the weir to the junction of Cales Dale. Low Wood is that piece of woodland which clothes the southern side of the dale from the

weir to near the junction of Cales Dale. The path runs along the northern bank of the river.

My thanks are due to Mr. L. N. Kidd for giving me his records.

#### NEMATOCERA

This superfamily has been largely ignored owing to the difficulty in keeping the specimens in a perfect condition until I get them home. Most records for this group are Mr. Kidd's.

##### Tipulidae

*Nephrotoma quadrifaria* Mg. 20. 6.7.1954. L.N.K.

*Tipula (Acutipula) fulvipennis* Degeer. Frequent in the wood in the summer.

*T. (A.I) maxima* Poda. One male. 16.6.1955.

*T. (Tipula) scripta* Mg. 22.6.1953. L.N.K.

*T. (T.) variipennis* Mg. Common in the wood in early summer.

*T. (Lunatipula) cava* Riedel. One male. 22.6.1953. L.N.K.

*T. (Lunatipula) lunata* L. Two males, 12.6.1955. L.N.K.

*T. (L.) fascipennis* Mg. One male, 27.6.1953. P.S.

*Helius longirostris* Mg. One male, 22.6.1953. L.N.K.

*Cylindrotoma distinctissima* Mg. Rather abundant amongst *Mercurialis*.

*Limonia (Dicranomyia) modesta* Mg. One male, 6.7.1954. L.N.K.

*L. (D.) chorea* Mg. One male, 6.7.1954. L.N.K.

*Limonia (Limonia) nigropunctata* Schummel. Common amongst *Mercurialis* in late May and June. P.S.

*L. (L.) masoni* Edwards. One male, 12.6.1955. L.N.K.

*L. (L.) tripunctata* F. Very abundant in summer. P.S.

*L. (L.) flavipes* F. Common. 22.6.1953. L.N.K.

*Epiphragma ocellaris* L. One female. 31.5.1953. P.S.

*Austrolimnophila ochracea* Mg. One male. 22.6.1953. L.N.K.

*Gonomyia (Gonomyia) recta* Tonn. One male. 22.6.1953. L.N.K.

##### Ptychopteridae

*Ptychoptera albimana* Mg. One female. 30.5.1953. P.S.

##### Bibionidae

*Bibio pomonae* F. One male. 26.8.1953. Taken by Mr. A. De Porochin.

##### Mycetophilidae

The flies of this family are very abundant in Low Wood, found by sweeping the *Mercurialis* beds in summer.

#### BRACHYCERA

##### Stratiomyidae

*Geosargus iridatus* Scopoli. Often numerous on foliage of small trees in June and July.

*Oxycera puchella* Mg. Fairly numerous along the river below Low Wood. P.S.

##### Rhagionidae

*Xylophagus ater* Mg. One male, 30.5.1953, taken in flight. It was noticed flying up and down the trunk of an old willow tree and was at first thought to be an ichneumon. The bark of the tree

was covered with moss from which tipulid pupae were projecting. One of these pupae was taken and a large *Tipula*—something like a large *marmorata*—was bred out. It is perhaps interesting to note that a female of this *X. ater* was bred from a *Tanyptera*—infested log, lying in one of the rides in Delamere Forest in Cheshire.

*Rhagio lineola* F. Fairly abundant in the wood in late summer.

*R. scolopacea* L. Abundant in late spring and in early summer.

*Chrysopilus cristatus* F. Frequent in the wood, June and July.

#### Therevidae

*Thereva plebeia* L. One male, one female. 31.7.1955. Taken near the weir. P.S.

#### Asilidae

*Dioctria rufipes* Degeer. Often very numerous in June, especially in a marshy stretch of the river below Low Wood. P.S.

*Machimus atricapillus* Fallén. Frequent in August. P.S.

#### Empididae

The flies of this and of the next family have not been collected in this dale, but both families are well represented.

*Empis tessellata* F. Abundant in June. Specimens have been taken as late as the end of July in poor years.

*E. (Pachymeria) femorata* F. One female. 12.6.1955. L. N. Kidd.

#### Dolichopodidae

No species collected by me. Mr. L. N. Kidd took one species.

*Hercostomus nigripennis* Flin. "Common". 22.6.1953.

#### Syrphidae

*Myiatropa florea* L. Frequent in the wood.

The three common *Eristalis*—*tenax*, *pertinax* and *arbustorum* are abundant, but none of the others have so far been taken.

*Ferdinandea cuprea* Scopoli. One male. 23.6.1956. Taken from the flower of the Guelder rose near the ford at Over Haddon. P.S.

*Brachyopa scutellaris* R.-D. Not a common species. One male, 31.5.1953; 1 female, 16.6.1955. P.S.

*Rhingia campestris* Mg. Usually fairly abundant.

*Xylota sylvarum* L. Frequent on vegetation in summer.

*Criorrhina berberina* F. One specimen seen near the ford in the dried up river bed. 23.6.1956. P.S.

*Volucella bombylans* L. Not normally common. About a dozen specimens were observed "patrolling" a stretch of clearing about ten yards long. They were flying amongst workers of two species of *Bombus* (*pratorum* and *terrestris*) and with them visiting flowers of a species of bramble. By this clump of bramble one of these bees certainly had a nest and the flies were seen to rest within a foot or two of the site on several occasions. Both forms of the fly were present. 23.6.1956. Also seen singly on one or two other occasions. P.S.

*Baccha elongata* F. One male. 2.6.1953. P.S.

*Chilosia albitarsis* Mg. Very numerous in late spring and early summer on flowers.

*Chilosia antiqua* Mg. One male. 16.6.1954. P.S.

*Syrphus glaucius* L. Very abundant on flowers of Umbelliferae in August.

*Syrphus laternarius* Muell. With above, but less numerous. August. P.S.

*Chrysotoxum arcuatum* L. One male. 31.5.1953. A most unusual capture. This fly is commonly found on heathy ground in the north-west of England, but there is no heath anywhere near this part of Derbyshire. P.S.

(To be continued)

## An Entomologist in Yugoslavia

By RALPH L. COE.

(Continued from page 11)

As the bus to Pec climbed out of the valley, a more expansive view of the lake of Scutari unfolded. In the distance across the gloomy waters could be seen the four peaks of the Prokletigora, the "Accursed Mountains" of Albania. Soon we were descending once more, and as we reached a broad plain the white buildings of Titograd came into sight not far off. Formerly called Podgorica, it has replaced Cetinje as the capital of Montenegro. The bus pulled up when we arrived at the city, and I clambered out to stretch my legs before we set off again. A French-speaking Yugoslav came up to join the bus, and invited me to have a drink with him at a near-by wine shop. It was cool inside, the shelves lined with bottles and sundry casks standing behind the counter.

My new acquaintance ordered the drinks, and we were each handed a glass of a pale liquid. The flavour was spiritous and fairly pleasant. Frantic signals from the conductor indicated that the bus was about to leave, and we hurriedly drained our glasses and boarded it. When I told the Yugoslav that the drink was new to me and asked its name, he clapped me on the back and said in French: "You did well, my friend! That was rakia, and six times the usual dose!"

The vehicle once again climbed steeply into the mountains, twice reaching the snow-line, then descended into the wild gorges of the Morava river, and on into forest-girt Andrejevica, a compact community of wooden buildings. After a brief halt, we breasted the Cakor Pass and soon found ourselves in the weird Rugovo Gorge, with the torrent of the Bistrica river raging beneath. After leaving the gorge, it was not long before Pec was reached.

It was early evening, and I followed my Yugoslav friend into a café for a meal. After we had been sitting down for a while a ragged young peasant came and sat down at our table. He spoke excitedly to my companion, who then repeated his words to me. During the war he and his brother had fought for rival partisan groups, and after hostilities ceased were not on speaking terms. Now he bitterly regretted their quarrel, and wished to be reconciled to his brother, who had emigrated to England several years ago. He passed me a slip of paper on which he had written "Higgs and Hill" and his own name and address. On this flimsy information I promised to try to trace his relative. Back home, I wrote to Messrs. Higgs and Hill, the building contractors, asking if they had any knowledge of a person of the name of ———. Their reply was courteous and detailed. He had left their employ as a

canteen porter in Oxfordshire in 1954, and they advised me to write to the Chief Constable's office at Oxford, where he would have to report any change of address. I did so, and received the reply, "Your name and address are being given to ———, so, if he wishes, he will communicate with you." Within a week I had received a most touching letter from the man, one passage reading, "I am overwhelmed with joy at the thoughts of being able to get in touch with my brother again." So all ended happily.

After bidding farewell to my two companions, I boarded a slow train at 7.30 that evening for the Macedonian capital of Skoplje. At 11 p.m. I had to change trains at a tiny halt called Kosovo Polje, and waited there until 2 a.m. for the connection. With me were a crowd of peasants, lying all over the platform surrounded by their bundles. In the darkness outside I saw lights twinkling from a small building and, hoping that this was a café, I crossed a muddy stretch of ground to it, taking my cases with me. Through a window, I could see a few people eating and drinking, so I went in. Putting down my luggage, I ordered some coffee at the counter. When I had drunk it and turned to leave, I was horrified to find that my cases had vanished.

Stumbling across the mud, I looked this way and that for the perpetrator of the outrage. Suddenly I saw a torch flashing at me from the direction of the railway halt. Hurrying over, I found on the platform, with my cases by him, the most ragged man I had yet seen in Yugoslavia. Young and good-looking, he wore a long robe of the Moslem type, so patched that little of the original material remained, baggy torn trousers and dirty sandals. He stared at me, without showing embarrassment. His intelligent expression gave me the feeling that his rags were 'phoney'. When the train came in, I took my cases into an empty dimly-lit carriage, and made myself as comfortable as the extremely sooty seat would allow.

As the train puffed out, to my astonishment the ragged man reappeared, and in English asked to see my documents. Handing these over, I followed him into the corridor, where he examined them carefully under a light. Just then the guard appeared at the end of the corridor, and quickly returning me the documents my mysterious visitor shot into a lavatory, clicking the bolt. The guard looked suspicious, and asked me in Serb who was behind the locked door. I shrugged my shoulders, and said "Engleski", whereupon he went off, dissatisfied. Directly he was out of sight, the lavatory door was quietly opened, and the mystery man jumped out from the slowly moving train on to the line and disappeared into the darkness.

At 4 a.m. the train reached Skoplje, and I got off, dead-beat and filthy with the grime of the journey. A porter carried my cases to the Hotel Makedonia, where I booked a room, had a good wash and went soundly to sleep. In the morning I set off for the outskirts of the city to visit Dr. Cabeb at the Medicinski Fakultet, and spent several hours looking through the entomological collections there. Dr. Cabeb, a charming man for whom Dr. Lorkovic in Zagreb had given me a letter of introduction, also showed me the fine medical library in the Faculty. Afterwards he took me to his home for lunch and a refreshing drink of home-made raspberry cordial.

Bidding my kind host good-bye, I spent the afternoon in exploring

the capital. Skoplje is separated into two contrasting cities by the wide waters of the Vardar. On the one bank are modern shops and wide thoroughfares, while on crossing the river bridge one steps directly into the oriental atmosphere of street bazaars, mosques and narrow alleys paved with uneven cobble-stones. Wandering through this fascinating district, I came across the bombed roofless shell of an ancient building in which a schoolmaster was teaching his pupils to play football. At his command the game was brought to a standstill while I took a snap of the scene.

After tea in the hotel, I set off along the main street of the modern city for the station, to find out the time of departure of my train for Bitola the following morning. On returning, I saw to my amazement that the street was literally jammed from pavement to pavement with a vast crowd of people, strolling slowly in both directions. Then I remembered the traditional evening ritual of the "corso" promenade of Jugoslavian cities, towns and villages. Every inhabitant with a sound pair of legs joins in this communal stroll, which takes place in the main thoroughfare. While it lasts, traffic automatically makes a detour. As I became swallowed up in the crowd, it seemed to me as if most of Skoplje's population of a hundred thousand were present on this occasion.

In the morning I caught the 9.15 electric train for Bitola, formerly called Monastir, and the last stop before the Greek frontier. Even in this land of violent contrasts, the modern character of the train surprised me. Composed of two long compartments with the sides almost entirely of glass, the leading one with a convex glass front behind which stands the driver, it is the last word in smooth and comfortable travel.

Just as I had settled down for the journey, I saw an elderly woman on the platform pointing me out to a young lady by her side, who came aboard and took the seat next to me. She spoke very good English, and told me that she was a psychiatrist in Skoplje, off to visit a hospital in Bitola. The journey passed pleasantly enough in her company, until we had nearly reached our destination, when the train stopped and frontier guards clambered in to examine passports and identity cards. All Jugoslavs are compelled to carry one of the latter, complete with the holder's photo. When my companion produced her card, the photo was not there, and the soldier called over a superior officer to investigate the matter. When my turn came, I duly handed over my passport, and they both gazed long and earnestly at my photo and then at me. My moustache in the photo was very small indeed, but it had since grown large and untidy. Our two examiners were obviously suspicious and started firing questions at the lady. She turned to me with a smile, saying that they had asked her if we were man and wife. At last they went away, gesticulating at one another excitedly, and there, to my relief, the matter ended.

We got out at Bitola and took a horse-carriage to the town, which is more than a mile away from the railway station. Together with two other travellers, we jammed ourselves and our luggage into the ancient vehicle, which set off along a wide tree-lined avenue. The driver set us down at the bus station, where we found a long queue of people waiting to book their seats. My fair companion kindly stayed with

me to act as interpreter while I was getting my ticket for Ochrid, my next objective. When I reached the booking counter and asked for a ticket, the clerk shook his head and waved me aside, saying that all seats for the Ochrid bus were taken, and I could not travel until the following day. This was indeed disquieting news, but as nothing could be done for the moment we went into a nearby café to have lunch. My friend advised me to hang about the bus station until the next Ochrid bus arrived in an hour's time, and see for myself that there were no empty seats. After a good meal, she went back to plead with the booking clerk that it was essential for me to travel to Ochrid that day. Standing modestly in the background, I heard the clerk answering her excitedly. "Why should this Englishman go and leave one of our own people behind"! the lady interpreted.

Dejected, we went outside again. Just then a private coach pulled up by us, filled with school-girls. My companion went up to the mistress in charge, and spoke to her earnestly, pointing at me. The teacher smiled and nodded. "They are bound for Ochrid, and will gladly take you with them," said my friend. My cases were put in the boot and, bidding the young lady good-bye and thanking her profusely, I boarded the vehicle. One of the pupils sat on another's lap to make room for me. Before we set off, the girls were slightly re-arranged so that those with some knowledge of English could sit in my part of the coach.

A slim, dark-haired girl of about fifteen sat next to me, and I was soon hearing all about their exciting journey. They belonged to a school in far-off Zagreb, and in line with the Yugoslav Government's broad-visioned educational policy, they were touring their country during their summer holidays. Ochrid was to be their last place of stay before starting homewards. Erica, my talkative companion, told me how thrilled they all were at the prospect of seeing the great lake for which the locality is famous. After a time, the girls started singing Yugoslav songs, and although it was delightful to listen to their youthful voices, I was sorry not to be able to understand the words. Then the teacher came over and spoke to Erica, who turned to me and said, "Would you like us to sing you an English song that we have been taught at school? All the girls have learned it, even though most of them cannot speak your language"! Of course, I answered that I would be delighted to hear it, and, led by the teacher, they all burst into the haunting melody of "My old Kentucky home". It was a moving experience, indeed, far away from familiar scenes, to have all these girls, their heads turned towards me, singing this song for my pleasure.

The coach stopped at the quaint little town of Resen, situated in a valley and famous for its skilled craftsmen in metal-work. We all got out, and strolled about in groups, some looking at the shops, and others seeking a place for refreshments. Erica led me into a café with a number of the girls, and I asked her what she fancied. Looking round with the air of a conspirator of St. Trinian's, to see that teacher was not about, she asked me if I had ever tasted krusevac. When I shook my head, she ordered two glasses. It turned out to be a delicious pear liqueur, and of such potency that I am sure Erica's teacher would have disapproved. I asked the precocious girl what she would like to eat, and she chose some Torta Dobos, a kind of chocolate cake, which we both enjoyed very much.

Before we got back on the coach, the teacher (through Erica) asked me if I would give her pupils an English lesson. When I agreed, they formed a close group round me and to the great interest of the townsfolk standing by I called out the numerals in Yugoslav and the girls chanted them back in English. "Jedan", "One"; "Dva", "Two"; "Tri", "Three" . . . and so on. The lesson was curtailed by the severe limitations of my knowledge of Yugoslav, and we soon climbed aboard and resumed our journey.

54 Crossways, Addington, Surrey.

(To be continued)

## Notes on Microlepidoptera

By H. C. HUGGINS, F.R.E.S.

*Heterographis oblitella* Zell. As a result of my appeal for information concerning recent captures of this moth in the December *Record* I have had a letter from Captain D. G. Marsh giving particulars of those in his garden at Littlebourne for the past three years. They are as follows:—

One in 1955, not in his hands at present

♂ on 10th July 1956, ♀ on 13th July 1956

♂ on 17th August 1957

Captain Marsh tells me he probably failed to take a good many as he did not often light his m.v. lamp in 1957 and used the trap only three or four times during the whole season.

The most interesting part of this letter is that Captain Marsh's garden is composed of a light powdery loam which becomes very dry and dusty in dry periods, and that the subsoil at four feet is a sandy gravel with large flints. I think that this explains why *oblitella* continued with him in 1957 when our very large colony at Pitsea died out. It must be remembered that all this district of Essex although the driest in England according to the meteorologists, is a very heavy clay which in a wet year becomes covered in pools and exceedingly cold. This explained why, although the district is a very good one for immigrants, few seem to become established. Wakering, where I found the larva of *Calophasia lunula* Hufn. in 1953, is the driest parish in England; but the soil is very heavy and cold, and *lunula* failed to survive although there must have been a good many in the two places where I found it. I was unfortunately too late for the larva, and took but one in one locality and two half a mile away, but the marks of feeding on the *Linaria* were conspicuous and showed there had been big broods. The three I found all spun within two days. I think, therefore, that there is a much better chance of further *oblitella* in Kent than here.

*Pammene aurantiana* Staud. On 14th January I called at the British Museum and—Mr. Bradley being, unfortunately, away ill—asked Mr. Fletcher to show me *aurantiana*. I was quite surprised to see what it looked like: it is like a greenish-brown and gold *trauniana* Schiff. I am one of those unfortunate people who have great difficulty in visualising an insect from a description, though, perhaps as a compensation, a good figure or a specimen once seen remains in my mind's eye for life. I had often great difficulty in following even such careful



descriptions as those of Dr. Cockayne and used to turn to the Plate for assistance. The descriptions of the late Edward Newman, faithfully giving every detail, put me in mind of sentences by Henry James, in which I can understand every phrase but often cannot tell what on earth he is driving at. The moral is, go to the Brit. Mus. as often as you can!

## Notes on the Tineina

By S. WAKELY.

March.—Many species can be bred from old birds' nests collected this month. *Acedes semifulvella* Haw. is said to frequent nests of chaffinches and linnets, while *A. ganomella* Treits. occurs in nests of nearly all the smaller birds and must be one of our commonest birds' nest moths. *A. piercella* Bentinck can be bred from old nests of starlings and house-sparrows taken from holes in trees. I have bred it in numbers from nests found near South Norwood Lake, London, S.E.25, and a specimen has also been taken on a tree-trunk in Brockwell Park, Herne Hill. This moth is very much like a pale form of *Tinea fuscipunctella* Haw. House-sparrows' nests from houses often produce *Tinea columbiariella* Wocke in numbers. Blackbirds' and thrushes' nests, on the other hand, often yield numbers of *Monopis rusticella*. The nests are best kept in large flower-pots or suitable receptacles outdoors as numbers of fleas often appear in the spring, together with various species of diptera. Other moths which occur in nests are *Endrosis sarcitrella* L., *Borkhausenia pseudospretella* Stt. and *B. fuscescens* Haw.; in fact, one never knows what may turn up. Nests of the previous year are best. Newly-made nests should not be taken, of course, and very old nests should be avoided.

Fungus growing on old tree stumps, posts, fallen trees, etc., is frequently tenanted by larvae of various species which can be bred later with little difficulty. Lumps of fungi showing signs of frass can be gathered and kept in flower-pots sunk into soil in the garden in a shady spot. The commonest species is usually *Tinea cloacella* Haw., but *T. arcella* F., *T. fulvimitrella* Sodof., *T. corticella* Curt., *T. parasitella* Hb., *T. granella* L., *T. infimella* H.S., and *T. ruricolella* Stt. are not infrequently met with. It is important to mark each batch of material with the locality so that it can be put on the data label of any insect eventually added to one's collection. *Tinea arcuatella* Stt. and *T. picarella* Clerck also occur on fungi in North Britain.

I once bred a number of *Tinea insectella* Fabr. from thick dead ivy stems, but have not seen the species again. Numerous other species, some very rare, occur in dead wood, and samples should be taken whenever signs of frass are visible. *Dasycera sulphurella* F. is usually the species that one breeds, but there is always the chance of one of the better species like *D. oliviella* F., etc., appearing.

If one lives in a locality where the Hart's Tongue Fern (*Phyllitis scolopendrium*) occurs, the leaves can be examined for the feeding places of *Teichobia verhuellella* Stt. The larva feeds on the seeds (spores) which are arranged in regular ridges on the undersides of the leaves, and inhabits a silken tube covered with the brown spores. This tube can usually be detected easily as it often runs across the otherwise regular

rows of natural spores. This species is locally common in the Isle of Wight, Portland, and many other places.

Bags of Cotton Grass (*Eriophorum*) seeds can be collected for *Glyphipteryx haworthana* Steph., which emerges in May. It used to occur at West Byfleet, Surrey, and no doubt is still to be found on commons in this part of Surrey.

If yew trees, etc., are beaten during March the larval cases of *Luffia sepium* Spey and *Solenobia inconspicua* Stt. can usually be taken in numbers. Boxhill, Surrey, is a particularly good locality for both these species, which feed on the green algae covering the bark of the larger branches. If still feeding the larvae are not easy to rear. They have to be kept outdoors in a pot containing plenty of algae-covered branches. These should be sprayed with water occasionally, so plenty of ventilation is necessary or mould will destroy the larvae.

Larvae of *Mompha propinquella* Stt. are to be found this month feeding in the leaves of *Epilobium montanum* and *E. hirsutum*. The plants are small at this time of the year, but I have found the larvae by pulling up the small plants and examining them carefully. The larvae mine the leaves and fill the cavity with frass which can be detected easily when present. *Mompha miscella* Schiff. larvae can be found on *Helianthemum chamaecistus* (Common Rock Rose) mining the small leaves. The mines are easy to detect, but it is as well to hold the leaves up to the light to see if a larva is present as many mines are empty. A convenient way of rearing these species is to wrap the mined leaves in tissue paper and keep them in a flat tobacco tin. When full fed the larvae often spin up in cocoons between the paper, and these can then be transferred to three-inch glass-topped tins and bred out.

## Collecting Notes

Anyone who wishes to take *Hydraecia petasitis* Doubld. must first find a locality for its foodplant, butter-bur (*Petasites ovatus* Hill). It always grows in masses, and its large leaves, which may be three feet in diameter and are shaped like rhubarb leaves, makes it very conspicuous. It is only found in wet places, and a dry summer is desirable for working for this moth. Dr. King's experiences, as recorded in his diary, may be helpful.

He found several localities for the foodplant in the smaller river valleys of East Dorset, and on 20th August 1951 he visited one in the Tarrant valley. Dark rain clouds were overhead, and at 8.55 p.m. (b.s.t.) he took one *H. petasitis* flying over the plants. It was rather a worn specimen, and he saw no signs of any more. Four evenings later he revisited the locality and at exactly the same time he took a specimen just hovering low near *Petasites* leaves, and saw a possible second. On 5th September he went to the same place and saw one flying very low over the grass, but lost it. On 22nd August 1952 he went to this locality at dusk, but failed to see any moths. The dry year, he observes, had dwarfed the plants somewhat. A visit to another locality on 24th August was equally fruitless. This place was in the Allen valley.

He was more successful in 1953, although his first night proved

unproductive. On 18th August he went to the second locality at dusk. He found "plants very large and seem to have increased. Lit lamp before dusk and used it for one hour's walk round the whole area, but failed to see a sign of *petasitis*". Next day he visited the old locality and was joined by Mr. G. A. Cole. "In the evening it came on to rain, a steady drizzle. Mr. Cole caught 1 *petasitis* before the usual flight time. In all, he caught 5 and I caught 1 and lost 3. He used a Vidor lamp which seemed to bring them out of the leaves. I used my (Tilley) lamp and actually caught one temporarily settled on some grass tops. Mr. Cole carried his lamp round as an experiment while I beat the leaves, and in this way we think we disturbed 2 of his 5. Stayed about an hour. The temperature when we got home was 63° F." Two days later they were at it again. It was a cooler evening. "At the normal time for the commencement of flight I took 1 *petasitis* as it flew and settled under the edge of a leaf. A short time after, I saw another flying among some leaves, and Mr. Cole netted it. Thorough search with Tilley and Vidor lamps failed to produce any more."

Next year 1954, Dr. King went to the Tarrant valley locality at dusk on 13th August. The plants had nearly all been cut and he failed to find any moths even with the lamp. In 1955 he discovered another locality near Cranborne where *Petasites* grows profusely at a water-cress bed, and obtained permission from the owner to visit it with an m.v. light. On 24th August he went with Mr. A. C. R. Redgrave and his m.v. light to this place, and they took one *petasitis* at 10.45 p.m. (b.s.t.) "making its way low through the grass towards the light". It will be noted that this specimen was flying nearly two hours later than most of the previous captures.

An analysis of these activities shows that over a period of five years only 15 or possibly 16 specimens of *H. petasitis* were seen, of which 11 were taken, 10 of them in the Tarrant valley locality. But even here none was seen in 1952 and 1954. Just before 9 p.m. seems to be a good time to look for the insect, which does not appear to be strongly attracted to light, even the m.v. lamp.

H. S.

## Practical Hints

THE TIGER-MOTHS IN MARCH.—The easiest time of year to find larvae of *Arctia caja* L. is the end of March. They are still quite small, and brown in appearance, and on sunny days may be seen basking at the top of the young shoots of white dead-nettle (*Lamium album*) and stinging nettle (*Urtica dioica*). Later on in the year, when the herbage is denser, they are harder to find.

Larvae of *A. villica* L. may also be found at the end of March. They are still in the stage when their general appearance is black. Towards the end of April, after their last moult, they are densely covered with golden brown hairs which give them quite a different and a very beautiful appearance. They are often to be found enjoying the sunshine on a rosette of the root leaves of a species of hawkweed (*Hieracium*), sometimes close up to a gorse bush or even partly hidden

by its trailing lower branches. On dull days they do not show themselves.

In March, larvae of *Phragmatobia fuliginosa* L. may be seen on sunny banks after hibernation and before spinning up.

Larvae of another allied species, *Panaxia dominula* L., may be found towards the end of April in clumps of comfrey (*Symphytum officinale*), a favourite food-plant. If the leaves show signs of having been eaten, the clump should be searched for larvae. They may be found resting on the ground or right down at the bottom of the leaf stalks in the middle of the clump. These larvae do most of their feeding at night.

H. S.

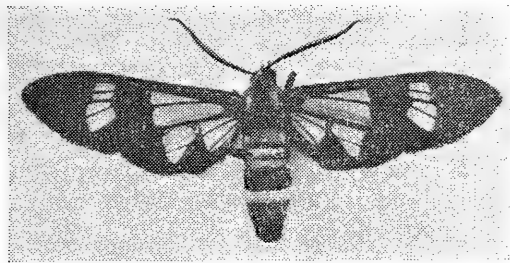
March is a good month for finding cocoons of *Drymonia dodonaea* (*trimacula*), one of the three oak-feeding Prominents. You must not lose a day now if this species be your quarry; for *dodonaea* quite often emerges from the pupa before the end of this month. When pulling out the debris from crannies under the trunks of oaks always scrutinise dead leaves. Quite often the cocoon of *Bena fagana* (*Halias prasinana*), like a little capsized boat, will be found attached to them, on the underside of the leaf. March is also the month to select series of the little *Diurnea fagella*, which usually occurs in great variety on the trunks of oak and beech.

From the 15th to the end of the month the two *Brephos* species will be on the wing, *parthenias* flying in sunshine about the birches, *notha* flitting about aspen. They are attractive moths and if you want to obtain a series of them in good condition you must watch out for their first appearance, as they very soon become worn. The larvae of both are, later, quite easy to find—don't forget that they bore into dead wood to pupate—but unhappily *parthenias* at least has a habit of remaining several years in the pupal stage; so it is usually more convenient to catch them on the day they emerge in the wild.

*Biston strataria* (*prodromarius*) used to be so punctual in its appearance that one could almost set one's calendar by it, so to speak. March 24th used to be *der tag*, and on that day one could be virtually certain of finding a specimen or two on trunks of oak or hornbeam (particularly the latter) in many a woodland. But of late years this moth has taken to appearing both earlier and later—ranging from 18th March to 18th April, according to the season. Still, the last week of March seems to be the period of the main eclosion. In some years this moth is extraordinarily common: we have seen two dozen, many of them paired, on the trunks of hornbeam within the space of a couple of acres.

By the way, when searching oak trunks for moths at the end of this month don't forget *Eupithecia abbreviata*. In our experience it is none too common, and well worth working for. The moth rests by day on the underside of the big low spreading branches of oaks, within, usually, a yard or so of the trunk, and a smart blow with a stick will usually dislodge it, when it may easily be netted. Always memorise the trees on which you find this moth; then you can return with the beating-tray in June.

# Notes and Observations



*EUCHROMIA LETHE* FAB. IN ENGLAND. — Our contributor, Mr. C. Craufurd, writes: "with regard to my Note on this species (*Ent. Rec.*, 70: 58) my friend Mr. A. E. Hick has kindly photographed the insect for me. The alar expanse (pin to tip of R. wing

×2) is 51 mm."

*THOLOMIGES TURFOSALIS* WOCKE AT ESHER (SURREY).—I see from Part 3 of *The Moths of London and its Surroundings*, by Dr. C. G. de Worms (1956: 132—*Lond. Nat.*, 1955: 76) that there is only one record of this diminutive bog-frequenting Hyphenid for the London area as defined for the purpose of that survey—three specimens having been taken by Mr. J. L. Messenger at light in 1953 at Weybridge, on the perimeter of the area. I am able to report its presence a little nearer the metropolis, having caught two examples in a boggy spot at the edge of the Black Pond, Esher Common, at dusk on the 31st August 1955. This is, indeed, only about four miles E.S.E. of Weybridge, but it is perhaps rather curious that in a locality so well worked as Esher it does not seem to have been met with before; unless it has lately been spreading in from West Surrey, where it is no doubt fairly common. More likely, however (as Dr. de Worms suggests) it has been overlooked, and may be truly restricted nearer London by the paucity—in the present era at least—of suitable conditions. On the west side of Weybridge, it was taken recently by members of the South London Entomological and Natural History Society in (I believe) the Chobham area, and Mr. S. Wakely took it at m.v. light at Byfleet in 1956 (*Ent. Rec.*, 69: 156); both places are outside the area under consideration by a few miles. I suppose that the early stages and life-history are still unknown. In view of the moth's particular habitat, it would not be surprising if the larva proved to be a sphagnum feeder.—A. A. ALLEN, 63 Blackheath Park, S.E.3. 6.ii.58.

*CLAVIGER TESTACEUS* PREYS. IN WEST KENT.—This curious myrmecophilous beetle seems very little known in Kent. I have seen but one record for the eastern vice-county: 'Near Doddington and Wychling' (A. J. Chitty, 1902, *Ent. mon. Mag.*, 38: 74), but this is not given in the Victoria County History list of Kent Coleoptera (1909). Since the species is not uncommon in suitable localities in the adjacent parts of Surrey (I have taken it on Box Hill and Chipstead Downs, from the former of which it has long been known) it must surely be widespread on the Kentish chalk hills; but has probably not been searched for. On a visit to Shoreham Downs (between Swanley and Sevenoaks) in April last, I had no difficulty in finding a colony of *C. testaceus* in its usual habitat, a nest of the common yellow ant, *Lasius flavus* F., which in this case was situated in a bare patch of chalky soil on a grassy hillside.

I have just seen that it was also taken by my friend Mr. A. W. Gould in March of the previous year, on Halling Downs, near Strood, as noted in 1956, *Ent. mon. Mag.*, **92**: 200—the first published record, apparently, for West Kent.—A. A. ALLEN, 63 Blackheath Park, S.E.3. 6.ii.58.

**PAMMENE AURANTIANA** STAUD. AND **AUGASMA AERATELLUM** ZELL. IN DORSET.—Among some moths taken at Wimborne, Dorset, in July 1956, I find there is an example of *Pammene aurantiana* Staud., which species has recently been added to the British list: it was taken on 22nd July.

Another moth taken which deserves special mention is a specimen of *Augasma aeratellum* Zell. which I took on 24th July 1956. There appear to have been very few records of this local moth during the past half century, but I understand from Mr. W. Parkinson Curtis that he took one in Purbeck in 1916. Does any reader know of more recent captures?—Dr. D. A. B. MACNICOL, 52 St. Albans Road, Edinburgh, 9.

**PAMMENE AURANTIANA** STAUD. IN SURREY.—An unfamiliar visitor to my m.v. trap which I run in the garden here has now been identified as *P. aurantiana*. It appeared on the night of 17th July last.—J. L. MESSENGER, Oakhill, Weybridge, Surrey.

**AN EARLY ORTHOSIID**.—On 21st January I noticed an *Orthosia stabilis* Schf. clinging to the radiator of a Rolls-Bentley outside the Hungaria restaurant in Regent Street, an early date, but the ensuing cold spell will no doubt have spoiled the moth's apparent liking for high living.—R. G. CHATELAIN, 65 East Drive, Orpington, Kent. 23.i.1958.

**PAPILIO MACHAON** LINN. IN ENGLAND.—In his interesting paper on *Papilio machaon* L. (*Ent. Rec.*, **70**: 33) Prof. Balfour-Browne mentions that whilst the race *bigenerata* feeds on various Umbelliferous and Rutaceous plants the subsp. *britannicus* "is confined to marshlands and its caterpillars feed almost entirely upon the marsh- or milk-parsley, *Peucedanum palustre*". In confinement, however, the larvae of *britannicus* will grow to maturity on a number of disparate plants, some of which are given in my *Larval Foodplants* (1949, p. 17). The late Cecil Floersheim of Pennyhill Park, Bagshot, found that the ♀♀ *P. machaon* would oviposit (in a kind of aviary which he called his 'butterfly-house') on shrubs and even "readily" on a Citrus; and he recorded that "the larvae have fed up on this new pabulum" (*Aegle sepiaria* = *Citrus trifoliata*), "though much more slowly than on fennel or *Skimmia*" (*Ent. Rec.*, **22**: 239). In describing its feeding habits he wrote: "*Skimmia oblata* (*japonica*) appears to be its favourite foodplant, the imagines in my butterfly-house laying more eggs on this than even the fennel that grows by its side, and the larvae feed up quicker on this than on any other pabulum (the young succulent growths being preferred to the leaves of the year before). Next to this I should place fennel. It will also feed on rue and dittany (*Dictamnus fraxinella*), preferring the aromatic seed-pods of the latter, and on *Ptelea*, but the specimens found on the last-named take at least twice as long to feed up as those on *Skimmia*. I have never found ova or larvae on beaked-parsley or cow-parsnip, though both of these grow in my butterfly-house" (*ibidem*, **21**: 15). Elsewhere (*Ent. Rec.*, **17**: 277) he tells

us that his stock was obtained "from wild English pupae" and that a second brood imago emerged on 20th August. In the light of this oligophagy in both *bigenerata* and *britannicus* Wiltshire's interesting suggestion that *machaon* in England has become restricted to the Norfolk Broads because one of its foodplants (*Ruta*) is no longer grown in cottage or other gardens is not altogether satisfying.

What evidence is there that the race *bigenerata* once inhabited England alongside of the race *britannicus*, and what is that evidence worth? It seems to me more likely that our Norfolk and Wicken swallow-tail—race (not subspecies) *britannicus*—has evolved from a Continental form of the insect which moved northwards into (what is now) England as soon as the melting ice provided it with habitats and foodplants. Just, in fact, as *Lycaena dispar dispar* evolved from Continental stock and probably at about the same time. The simplest solution of these problems is often the best.—P. B. M. ALLAN.

A NOTE ON *PAPILIO MACHAON* LINN.—May I add a postscript to the above? A statement by Haworth has sometimes been quoted as showing that "two kinds of swallow-tails" once existed in Yorkshire. Haworth's statement was as follows:—"An ingenious and practical Aurelian friend has informed me that he took *two kinds of swallow-tailed Papilios*, near Beverley in Yorkshire, five-and-twenty years ago, but no specimens of them are now extant; a fire which unhappily destroyed great part of his property, having consumed them likewise. Now, as we have only two swallow-tailed species in Great Britain, one of the above in all probability was *Podalirius*" (*Lepidop. Brit.*, 1803. All the above italics are his).

With regard to the first of Haworth's sentences, perhaps it is sufficient to quote Mr. Justice Stareleigh in a celebrated lawsuit: "You must not tell us what the soldier, or any other man, said, sir," interposed the judge; "It's not evidence". As for Haworth's remark about *podalirius*, that insect is not a migrant and the extreme northern limit of its natural habitats in Europe is the valley of the Meuse south of Namur, roughly Lat. 50° 28' N., which is about the latitude of Teignmouth in South Devon. Wandering specimens do not wander very far; they do not even cross Lat. 51° N. In 1932 B. J. Lempke wrote: "Since 1789 only eight specimens have been caught in Holland" (*Lam-billionea*, 32: 211). Yet the frontier of the Netherlands is scarcely sixty miles from Namur! This number is so small (one in 20 years) as to suggest that these eight specimens were accidentally transported across the frontier by man's agency.

Haworth went on to remark: "I know *Machaon* (*the common swallow-tailed Papilio*) breeds near Beverley yet; and my brother-in-law, R. Scales of Walworth near London, possesses a specimen of it which was taken there about seven years since". It is true that Robert Scales lived, immediately after his marriage (1793), for a short time at Cottingham; but he was of East Anglian stock and after trading (as a Spanish merchant) in the City for a few years he returned to his native county, bought an estate near Acle, and in 1812 leased 3,500 acres at Beachamwell, near Swaffham, which he farmed until his death in 1828. It was at Beachamwell that Haworth and his wife went to stay with him. He was a fine entomologist and amassed one of the

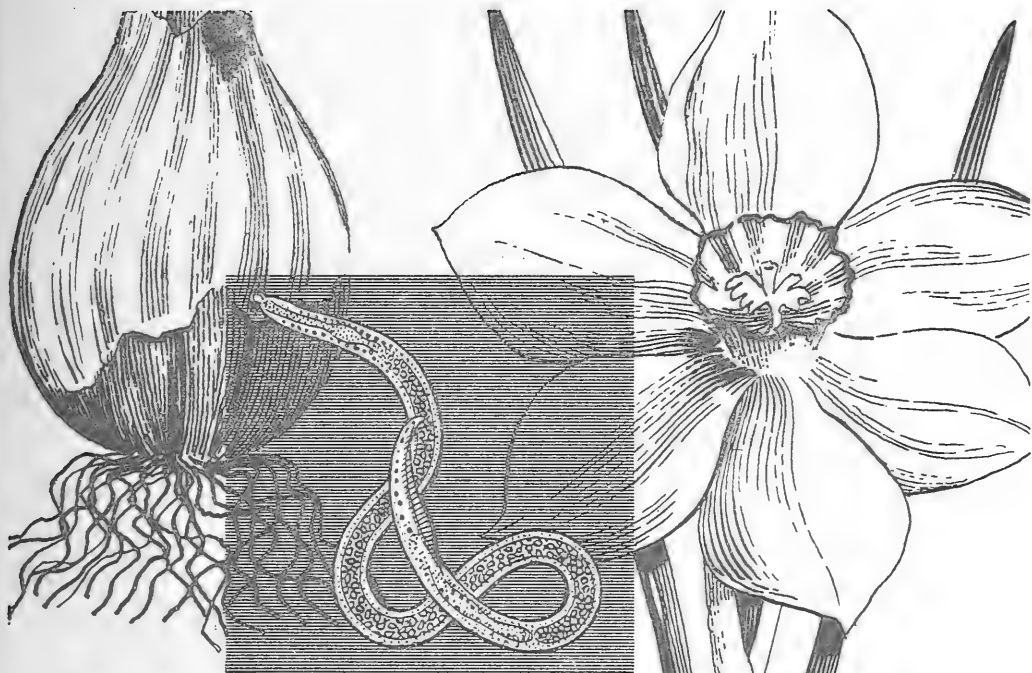


largest collections in England. It was not the custom in those days to label cabinet specimens, and where an extensive collection is concerned memory is fallible.

Moreover, how did Haworth know that "it breeds near Beverley yet" if the only evidence he could adduce was a single specimen reputed to have been taken there "about seven years since"? Beverley is only 4 miles from Cottingham as the crow flies, where his friend and correspondent Peter Watson was living in 1803, in fact until his death in 1830. Indeed at this very time (1803) Haworth wrote: "My good friend P. W. Watson" has recently "taken and sent to me" a specimen of the Mazarine Blue. Watson could have told him about any butterfly in the Beverley district by return of post, so to speak—not to mention several members of Haworth's family, who owned three of the four manors at Cottingham and had lived there for generations. Wishful thinking, credulity and hearsay are valueless to the historian (except as demonstrating the fanciful beliefs of an era); to the professional scientist they are anathema. They can be so devastatingly misleading.—P. B. M. ALLAN.

LYCAENA DISPAR DISPAR HAW. IN THE NORTH OF ENGLAND.—Now that I am no longer able to travel about the country to visit small museums and search collections of letters and diaries in public repositories and private hands I should be most grateful to any readers of the *Record* for information about *L. dispar* north of the latitude of Sheffield. It seems to have been not uncommon in the late 'fifties and early 'sixties in the carrs north of Gainsborough, and the ordnance maps of sixty years ago show that the butterfly could, even up to the beginning of this present century, have ranged throughout the extensive fenland not only to Hatfield Mere (as it formerly was) east of Doncaster but across the Stainforth canal over the marshland round about Goole, probably across the Ouse in the low-lying ground round about the Derwent, perhaps as far north as the fenland between Hornsea Mere and Great Driffeld. For the northern limit of *L. dispar*'s range on the Continent is just south of Latitude 55° N., which is about the latitude of Sunderland. All this great area of marshland was at one time conterminous with the Lincolnshire fens, to as far south as Cambridge, and since it is the nature of a lepidopteron to spread throughout an area which satisfies all its physiological requirements, in other words that it is to the advantage biologically of every organism to occupy the *whole* of the area which is capable of being a habitat, it is likely that *L. dispar* had a wide distribution in this country in days gone by. A hundred and fifty years ago the fens of South Lincolnshire alone covered 363,000 acres and it was here that the Rev. K. J. Miller of Walkeringham took *dispar* a century ago, on the Nottinghamshire side of the Trent. Specimens taken by Miller and Forrington (both good lepidopterists) in Notts. and Lincs. north of Gainsborough are still in existence and there must be a number of specimens in small country town museums and private collections scattered about North Lincs., Notts. and Yorkshire. I shall be most grateful for any information about such specimens, or records in letters or diaries from these counties, of which any reader can tell me.—P. B. M. ALLAN, 4 Windhill, Bishop's Stortford, Herts.





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## EXCHANGES AND WANTS

*Cambridgeshire Lepidoptera*.—Records wanted for new County list in preparation. Butterflies, Pyralids and all Chippenham fen records particularly wanted. Full acknowledgment will be given.—*Brian O. C. Gardiner, 43 Woodlark Road, Cambridge.*

*Wanted*.—Second-hand Robinson type mercury vapour lamp trap.—*J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent.*

*Wanted*.—An examination of the Coleoptera section of the General Science Museum at Merchant's Taylors School shows that there are a great many gaps in it. Can any Coleopterist readers of the *Record* assist by sending some of their duplicates?—*G. Lucas, 17 Munden Grove, North Watford, Hertfordshire.*

*For Sale*.—Unused 125W. High Pressure Ultra-Violet Lamp (Wood's Envelope) with Choke and Fittings, £6.—*L. G. Stimson, 26 Pemberton Road, Lyndhurst, Hants.*

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Dr. Kettlewell regrets that, due to the fact that he has unexpectedly to go to Brazil in connection with the Darwin Centenary, he will be unable to write individually to the various people who are helping him in connection with the survey of Industrial Melanism. He would be most grateful, however, if they could continue to keep records in his absence of all those species about which he requested information last year. He hopes to be back at the beginning of May.

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# THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

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RECORD

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EDITED BY

S. N. A. JACOBS, F.R.E.S.

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## Inverness-shire in 1957

By Commander G. W. HARPER, R.N. (Retd.), F.R.E.S.

After the unsatisfying season of 1956 a severe winter with plenty of intense frost was greatly to be desired, in order to give the surviving Lepidoptera a respite from predatory birds. No such luck, however, occurred, and the succeeding winter and spring of 1956-57 were milder than ever and proved a veritable 'Tits' Paradise'. This was confirmed by our Ornithological friends later in the year when they reported a record breeding season for small birds, and tits in particular. Here in northern Scotland we had a green Christmas, followed by a very mild and wet January and February, with only an occasional slight frost and sprinkling of snow. So all the omens pointed to a poor entomological season, which proved to be only too true.

I saw the first *Phigalia pedaria* Fab. flying across my garden in a blustery wind at noon on 18th January, and it had obviously been out for a few days; this was approximately the same date as my previous earliest date for this species in 1953. Another emergence took place on 7th February, when *Conistra vaccinii* L. also appeared at the street lamps, while the missel thrushes started singing the next day.

The immigrant plovers and oyster-catchers started to arrive in force on 2nd March, the same date as last year, so I started my m.v. light trap on the 3rd; it attracted only a few *P. pedaria* and common hibernators before the 9th, when *Colostygia multistrigaria* Haw. arrived, followed on the 11th by *Achlya flavicornis* L., and then the usual early spring moths in rapid succession, the season being only about a fortnight earlier than normal. Dr. C. B. Williams told me he had the first *Brachionycha nubeculosa* Esp. in his light trap at Kincaig on 16th March, and I found my first one on a birch trunk on 24th. By this time the sun had some heat in it and the same day *Aglaia urticae* L. and *Archiearis parthenias* L. were both flying in my garden and birch spinney, while *Lycia hirtaria* Cl. began emerging and expanding on the birch trees. This was one of the very few species to enjoy a good season; *L. hirtaria* has not been so abundant since I settled here in 1951; for example, the normal average number of females to be seen on the birch trees each year is three; this year at least a hundred females and as many males were seen; they were very large and variable, about half being the local golden colour.

*Poecilopsis lapponaria* Bdv. began to emerge at Newtonmore on 28th March, but it continued in much smaller numbers than usual. The sallows were fairly productive of the usual *Orthosias* and other spring species about this period.

April began with a warm and sunny week, but a severe "lambing" storm with a heavy snowfall occurred on the 11th, and this delayed fresh emergences of moths until the 21st when *Chesias rufata* Fab. appeared in the trap and continued to be rather commoner than usual at intervals lasting until July. Males of *Endromis versicolora* L. in small numbers, and many *Saturnia pavonia* L., were flying freely in the sunshine on the 23rd. Spring larvae were, as expected, scarce, especially those of *Polia hepatica* Cl. (*tincta* Hb.). Predation by birds must have been on a big scale. Cold, clear nights during the last week were very unproductive of moths, too, but slightly compensated by the fine

spectacle presented by the Arend Roland comet in the Northern sky. A visit to Struan across the Perthshire border on 26th showed one of the colonies of *Cleora cinctaria* Schf. to be in good shape, but the well-known one near the station only produced one specimen. Thus the month ended with the early start to the season neutralized by the cold spell, and emergence dates about normal.

Bitter northerly winds and the snow-line down to 1,000 feet ushered in May, and lasted for three weeks. M.v. trap catches throughout were in single figures, most disappointing, and emergences were very slow and scanty. For instance, *L. hirtaria* was still emerging on the 13th, and the Spring butterflies, *Pieris napi* L. and *Euchloe cardamines* L., were not fully out in both sexes until the 22nd; the last week, however, saw a recovery, and the usual common early summer moths, such as *Hyppa rectilinea* Esp., *Hadena contigua* Schf., and *Cerura vinula* L.; were appearing in fair numbers. A day's outing on the 25th to the much milder and more sheltered Western side of Inverness-shire, the Great Glen and the lochs West of it, gave an interesting comparison; here I found *Carterocephalus palaemon* Pall. well out in a new locality; it is probably widely distributed in that area. *Argynnis euphrosyne* L. and some of the very local day-flying moths such as *Pseudopanthera macularia* L. and *Scopula floslactata* Haw. were not uncommon. On the same day I also saw the first immigrant moth of the year, a *Plusia gamma* L., flying near Spean Bridge.

June began well with a fair number of moths in the m.v. trap, from 50-90 moths a night, which is slightly below the average for the time of year. The respite was short-lived, and on the 5th the wind backed northerly again with snow on the "tops" and temperatures barely reached 40° F. in Strathspey. In spite of these conditions it was interesting to find that *Hadena conspersa* Schf. was flying and feeding freely on the blossoms of *Silene maritima* growing in the shingle banks of the river bed on 7th June.

Really warm sunny weather at last arrived on 14th when a delightful and interesting week-end was spent in Argyll with Mr. E. C. Pelham-Clinton at Appin. En route near Ballachulish, at sea level, I was amazed to see and capture a very fresh male *Erebia epiphron* Kn. The species is of course plentiful on the mountains above, but how it reached this quite exceptionally low altitude on this very early date can only be a matter for conjecture! *Euphydryas aurinia* Rott. was locally very plentiful but getting a little worn in many localities down the coast, as also was *Diacrisia sannio* L. and *Zygaena filipendulae* L., indicating that the season in this sheltered area was still on the early side. Back in Badenoch on the 16th the rest of the month was on the whole warm and sunny, so that in spite of B.B.C. frost warnings on the 24th, the Summer butterflies *Aricia agestis artaxerxes* Fab. and *Polyommatus icarus* Rott. were emerging the same day, the normal date. The species of moths also were normal, but the m.v. trap catches still below average, where they remained for the rest of the year due largely to the unusually small numbers of the commoners such as *Triphaena pronuba* L. and *Apamea monoglypha* Hufn. for which small mercy at least the tits can be thanked!

July also began well, with the year's record m.v. trap catch of 204 moths and 50 species on the night of the 4th. Returning from London



on 5th July my son, M. W. Harper, climbed to 3,000 feet in the Monadhliaths behind Newtonmore. We have been trying to find *Amathes alpicola* Zett. in the odd-numbered years as well as the even since we came here in 1951. This time he was successful, netting a male in fair condition as it flew in the sunshine in the afternoon. This is the only undoubted British record for the imago of this species, of which I am aware, occurring in an odd-numbered year; it is to be hoped that others will be forthcoming.

On 7th July *Itame brunneata* Thun. was flying freely among the bilberry in Rothiemurchus forest in the evening, and this date marked the end of the warm weather for the season; thereafter it was very cool, cloudy and stormy. Mr. J. L. Campbell of Canna had most kindly asked us to spend a week in his delightful island, so we decided to spend a couple of days en route and after, collecting on the west coast of Inverness-shire where many species occur which are absent from Badenoch. We set out on 10th July and that night were fortunate to find a colony of *Schranckia costaeatrigalis* Hb. sitting and flying about the grass and rush heads in a damp spot on the edge of an oak wood near Arisaig. When returning to our rooms at midnight some large Geometers were seen flying in the headlights, which proved to be a fine colony of *Selidosema plumaria* Schf. in perfectly fresh condition, with many females resting on grass and heather. The latter sex was later found to have a short flight about 4.0 p.m. G.m.t. The next day, 11th, a colony of *Pararge aegeria* L. was discovered, some being fresh, others worn, while the sand hills were alive with fresh female *Satyrus semele* L.

The weather in the Isle of Canna between 13th and 20th July was not very kind, a cool northerly wind with much cloud and rain preponderating but some good sunny intervals. The local Lepidoptera were most interesting; the *Maniola jurtina* L. contained a high proportion of a very bright form which seems referable to var. *splendida*, and the *Euphyia bilineata* L. were a very variable greyish race. Under the dark basalt cliffs a dark race of *Gnophos obscurata* Schf. together with *G. myrtilata* Thun. occurred. Larvae of *Nyssia zonaria* Schf. were commonest on yellow iris, but also on thrift and sea plantain, while larvae of *H. conspersa* and *H. caesia* were of all sizes, on *Silene maritima*, while a few imagines were still on the wing. Three interesting new discoveries were *Eilema lurideola* Zk., *Pelurga comitata* L. and *Sterrhia inornata* Haw., all flying under the inland basalt cliffs, while a large colony of *Perizoma affinitata* Steph. flew near Mr. Campbell's house.

Back on the mainland on 20th a few *Eustrotia uncula* Schf. were found near Arisaig, the furthest north that I have found this interesting little moth; it was in company with a number of *Rivula sericealis* Scop. In a sheltered glen a small colony of the heather feeding *Abraxas grossulariata* L. were emerging. This species is exceedingly local and limited in numbers in northern Scotland; this colony was heavily parasitized. While working in this glen a single *Colias croceus* Fourc. was seen flying at full speed in a northerly direction. At night on the 21st *Philudoria potatoria* L., *Thalpophila matura* Hufn. and *Apamea exulis assimilis* Dbld. visited the m.v. light among many commoner species, but sugar was ineffective as usual.

Back in Badenoch on the 23rd, the month ended in a series of storms with heavy rain. However, a few sunny intervals in the afternoons

brought a very interesting discovery on 28th July; some Noctuid moths careering wildly over scree and cliffs near Newtonmore proved as suspected to be *Ammagrotis lucerneae* L. Previously I had only Mr. Clifford Craufurd's single record for Aviemore. This species is mainly a coastal one, and yet we had looked for it on the West coast without success! It would not come to m.v. light, however.

August was stormier than ever after the first few days, which were sunny and warm. Above 2,300 feet altitude in the corries above Dalwhinnie the melanic *Lygris populata* L. presented an amazing sight as they flew in thousands over the bilberry. Thus my observation under this species in my Badenoch list (*Ent. Rec.*, 66: 96) was confirmed again; the proportion of melanics, and their intensity of blackness, increases with the altitude until, near the top, at nearly 3,000 feet, they were all melanics, many of them intense. In the valleys melanics are rare, and the typical yellow form common. The early autumn moths were emerging fast by the middle of the month, followed by fierce autumn gales, and on the 28th the first *Chesias legatella* Schf. was in the m.v. trap!

September continued in the same cold stormy way, so that a visit to South Devon for the last half of the month with Mr. E. Hare was like a tropical interlude. Many delightful local species were taken, the high-lights being *Leucania unipuncta* Haw. at sugar and light, and *Plusia ni* Hb. resting most conveniently in a public convenience at Torcross! A large number of *Vanessa atalanta* L. had accumulated on the coast and were busy feeding on ivy prior to emigration, and several were seen flying at night, probably starting off. A few *C. croceus* Fourc., mostly ab. *helice*, were also seen.

Back in Scotland, October produced the most splendid autumn colours on the birches and rowans I have ever seen, but entomologically the season tailed off tamely with nothing of interest as the first snow fell on 19th.

Thus ended another disappointing year.

Neadaiach, Newtonmore, Inverness-shire.

## A Fortnight at Dungeness, 1957

By Canon T. G. EDWARDS and S. WAKELY

From 22nd June to 6th July we had the pleasure of collecting together in this interesting locality. Special attention was given to the micro-lepidoptera although many of the better "macros" were taken. We had our headquarters in a bungalow on the Coast Road near Lydd-on-Sea railway station and were able to use a m.v. light at the back of the building. The lamp was suspended over a sheet near the wall of the house, and, as usual, the wall proved more attractive to insects than the actual sheet.

When one considers the large area of flat shingle hereabouts, and the many miles one has to travel to reach oak or birch woodlands or heaths, the appearance of some of the species is a source of wonder as to how they got there.

As already reported, one of the species—namely *Laspeyresia lobarzewskii* Now.—was a new record for the country, although not actually the first specimen taken in Britain (*Ent. Rec.*, 70: 71). Apart

from this the taking of two specimens of *Celama aerugula* Hb. were the most noteworthy captures. They were both attracted by m.v. and found on the wall of the bungalow—in each case about 2.30 a.m. (British Summer Time), and appeared on two successive nights—28th and 29th June. An interesting fact was that many of the better moths put in an appearance between 2 and 3 a.m., but no matter how long one stayed up, fresh insects arrived till dawn. On some nights conditions were bad and very few insects appeared, so the light was not used after about 11.30 p.m. On one or two occasions, about 1 or 2 a.m., a faint eerie chorus of some introduced species of frog was heard on the breeze coming from large ponds about a mile away.

Some of the woodland or heathland species which mysteriously appeared were: *Lycophotia varia* Vill., *Cosmia trapezina* L., *Dioryctria palumbella* F., *D. hostilis* Steph. (striking pink form), *Phycita betulae* Goeze, *Acrobasis tumidella* Zinck., and *Eucosma nanana* Treits. The last-named small tortrix is attached to spruce and is not uncommon in many spruce plantations.

In addition to the great number of different species occurring in the area, the extent of variation in some of the insects was remarkable. For instance, the pale *ingratella* Zell. form of *Scoparia dubitalis* Hb. was more common than the type. A dwarf specimen of *Cynaeda dentalis* Hb. was taken with wing expanse of only 15 mm. as against the 24-29 mm. of normal moths. Both *Endotricha flammealis* Schiff. and *Synaphe angustalis* Schiff. varied considerably with some strikingly dark forms. *Euzophera marmorea* Haw. is usually a brightly coloured species, but all the specimens noted were of a dark dull form. The single specimen taken of *Crambus salinellus* Tutt measured 29 mm. across the wings as against 19-26 mm. of normal specimens. Among half-a-dozen specimens of *Depressaria badiella* Hb. was one specimen with orange palpi which appeared to be identical with the specimen about which Meyrick wrote in his *Handbook* for 1928: "A specimen from Deal, mentioned as *Depressaria aurantiella* Tutt, but not described, compared to *D. badiella* but darker, with striking orange palpi, apparently cannot belong to this genus, and is not known to me". Our specimen was sent to the British Museum and considered to be only *D. badiella* Hb.

Over 160 different species of moths were "logged" during our stay, many of them being single examples. In addition to those already mentioned were the following: *Tethea ocularis* L., *Dasychira fascelina* L., *Nola albula* Hb., *Earias clorana* L., *Spilosoma urticae* Esp., *Eilema pygmaeola* Doubl. (or should they be called *pallifrons* Zell.?), *Hadena conspersa* Esp. (very common), *H. albimacula* Borkh. (scarce), *Calophasia lunula* Hufn. (larvae not uncommon on yellow toadflax), *Nonagria sparganii* Esp. (half-a-dozen larvae taken in stems of *Typha angustifolia*), *Cucullia absinthii* L., *Aplasta ononaria* Fuessl., *Sterrhia subsericeata* Haw., *Epirrhoë galiata* Hb., *Eupithecia linariata* F., *E. millefoliata* Rössl., *Schoenobius gigantellus* Schiff., *Perinephela fuscalis* Schiff., *Pyrallis farinalis* L., *Nephopterix genistella* Dup. (one moth at m.v. and several larvae found on gorse), *Euzophera neophanes* Durr. (three taken at light), *Platytes alpinellus* Hb., *Capperia britanniodactylus* Gregs., *Phalonia affinitana* Dougl., *Tortrix unifasciana* Dup.

(swarming at dusk round gorse), *Spilonota ocellana* Fabr. (larvae at Greatstone on sea buckthorn), *Bactra scirpicolana* Pierce, *Argyroplote purpurana* Haw. (numerous), *Eucosma angustana* Hb., *E. caecimaculana* Hb., *Laspeyresia funebrana* Treits., *Aristotelia palustrella* Dougl. (several), *A. lucidella* Steph., *Gelechia diffinis* Haw. (common), *G. supeliella* Wals. (common), *Platyedra malvella* Hb., *Phthorimaea leucomelanella* Zell. (numerous), *Sophronia semicostella* Hb., *Brachmia gerronella* Zell., *Batia lambdella* Don. (half-a-dozen taken at light), *Hyponomeuta variabilis* Zell. (swarming on prostrate blackthorns on the shingle), *Ethmia sexpunctella* Hb. (two at rest on posts), *E. bipunctella* F. (two only at light), *Lithocolletis scopariella* Zell., *Leucoptera spartifoliella* Hb. (round broom), *Monopis imella* Hb. (three at light), *M. crocicapitella* Clem. (one at light), while *Trichophaga tapetzella* L. and *Tinea fuscipunctella* Haw. were both taken indoors.

The larvae of *Calophasia lunula* Hufn. spun up readily on a chunk of soft rotten wood and all were bred successfully.

Several runs were made by car, including a trip in the direction of Rye, Sussex, to search for larvae of *Hydraecia hucheradi* Mab. This was unsuccessful, but we were pleased to find larvae of the local *Larentia clavaria* Haw. on the plants of Marsh Mallow. Another trip was to Ham Street when a nice yellow form of *Cybosia mesomella* L. was netted.

The weather during our visit was not by any means perfect. One morning during breakfast there was a terrific thunderstorm and the roof of the bungalow was struck by lightning. Fortunately the damage was slight, but we shall not forget the experience. In spite of the poor season in general, our records are outstanding and interesting.

## Some Memories of S. G. Castle Russell

By Colonel S. H. KERSHAW, D.S.O.

(Continued from page 41)

In a letter written in February 1940, C.R. was commenting on a dozen beautiful pictures of some of his vars. sent him by Mr. Wykes the artist and writes, "He (Wykes) painted them from memory and drawings made whilst staying here. The colouring is all true, and I cannot imagine how he can paint without having the subject before him, but he says that all the colours are familiar to him and that he has his own name for each; the details are also perfect".

Fortune was usually as kindly disposed to C.R. as he was to others. Burkhardt told me of one instance, C.R. himself of a second:—C.R. had completed an inspection at Eton and was on his way to Pamber Forest; he had a sudden hunch to make a detour, call in at his house in Fleet and see how his *machaon* pupae were faring; he was just in time to save a black *machaon* from knocking itself to pieces in its efforts to get out of the cage.

In the second, he had a narrow escape from death when driving with masked sidelights during the black-out of World War I.

Referring years after to a bad car smash in 1940, he wrote, "I suddenly saw a horse's head in front of the wind-screen and the shaft of a cart passed under my armpit and through the back of the seat, amidst a shower of glass. I managed to complete the 12-mile jour-

ney home, but put full headlights on and chanced trouble, but there was little about, the time being near midnight. I shudder at the thought of that shaft missing me by inches even now”.

Yet fortune did not always smile on him. C.R. seldom tried to net an insect at rest on a flower or bramble, but waited until it rose, when he rarely failed to catch the butterfly. He gave as his reason that this method was less likely to damage insect or net against herbage or thorns than a sweep, and in a letter written in July 1940 describes one of his few failures. “I have had the good luck to see two first-class vars. and the bad luck to miss them both—an entirely black *valesina* and an almost entirely black *paphia* male. I ran after the *valesina* for a long way, hoping that it would settle, but it did not and slowly gained on me; I might have sprinted all out (he was 74 next month) but was not inclined to take the risk, as a hundred yards in (say) 11 seconds is too much for anyone except a Lipscomb or a Marcon. The *paphia* was an easy chance, as it settled on a spray of bramble and let me get the net six inches behind it; I made a sweep, to my surprise missed it and never even saw it get away. It was a lovely var., the most extreme I have ever seen alive, and more than equal to my best males; had I adopted my usual method, I should have caught it, but there being no foliage under it, I thought it might have gone down instead of up and decided to make a sweep”.

C.R. was always quiet and deliberate in his approach to an insect, as he believed that a butterfly reacted more quickly to sudden movement, especially of shadow, than to noise.

His old friend—C. E. Joy—died this year in Lyndhurst Hospital and C.R. had to make all arrangements for the funeral; they had been collecting *aegon* together near Beaulieu Road Station and Joy had caught an almost true gynandromorph; after the funeral C.R. found that Joy’s last act had been to send the var. to him as a memento.

From 1940 onwards the War came closer and closer to C.R.; he was living much too near Southampton—one of the main targets of the Luftwaffe—to escape severe bombing. He had already provided for the safety of his best vars and books, by burying the latter in a sealed iron box, and transferring the vars. to twelve large store-boxes strapped together in parcels which he could carry to safety if the alarm came close.

About his personal safety, he did not worry in the least. General Ransome once happily described C.R. as a “Cheerful pessimist”; he could be pessimistic about the future, but he was always cheerful about the present. See what he says about the intense bombing of 1942—now almost continuous on the areas of our southern ports.

“We had a 1500 lb. bomb dropped recently within 300 yards of us (at Highcliffe) and a few yards from the hotel in which Burkhardt was sleeping; it did not go off. Attempts to dig it up failed . . . and it was decided to blow it up, which they did last Friday when we were evacuated from the house. Fortunately it was too deep to do much damage and we escaped scot-free.”

Not a word about the dozens which did go off. His letter goes straight on to a more important subject:—

“I am about to arrange a sale in the autumn of some of Bright’s

insects to help pay for the 'Coridon Monograph', and will include the obsolete *arion*.''\*

In 1942 Russell attended the Crabtree sale and wrote to say that he "Had bought a fine *polonus*—a cross between *coridon* and *bellargus*. The black and white ground *c-album* was run up to £37 10/-, . . . I wonder what old A. B. Farn would have thought about the price of his var.! . . . I also bought a lovely *digitata bellargus* the most extreme ever caught and I now possess the three most extreme *radiata* hitherto recorded''.

C.R. was a strong Conservative in politics; he preferred *The Morning Post*—and later *The Daily Telegraph*—to *The Times*, which supported the government in power. He detested 'love interest' in his reading, and looked forward eagerly to each issue of an American journal, *Adventure*, which banned it.

He studied old entomological papers, searching for localities, and visited them, often to meet with disappointment, but he went on, since he was convinced that, unless built over, *once a var. locality, always a var. locality*, or as he put it, "There is a var. strain here".

C.R. had one special locality, which he called 'S. Hants', from which he took some fine vars., but the colony, as usually happens when vars. and cripples reach their pitch, began to decline and when in later years Ransome netted a first class ab. *radiata extrema* there, the General felt that the place had let C.R. down.

Even in its palmy days it was typical of C.R.s unselfishness that he could not resist taking his many friends there, after admitting that if the place were over-run, the owner would close it, not only to all and sundry but to C.R. himself.

C.R. described anyone who caught a good var. in a bad season as a "Lucky Collector"; he applied this term to himself in his letters and to Marcon, Ransome and myself, adding, "And I am glad it should be so".

When 78 on his next birthday, he wrote that he could still do 10 miles a day but was beginning to find it difficult to get down to or rise from a sitting position; however, his next letter said that he had spent four hours searching for *camilla* larvae in the New Forest and had, "Ruined a pair of old bags, forcing my way through brambles and undergrowth". He walked slowly, since he examined every insect he saw, but until 85 he could stand up to a long day's hunting, as Allan can bear witness.

C.R. got on well with all keepers and knew the Gulliver brothers well; he was very pleased one day at Lyndhurst to meet a keeper's wife who had been a Miss Gulliver and they had a long chat about old times. Like A. B. Farn, he always found out where keepers did *not* want people to go, *before* he went collecting.

His sight (with glasses) was amazingly good, he could spot most vars. on the wing and could tell at 15 feet whether or not a *cardamines* male had a spot in the orange.

He was firmly convinced that sheep did no harm to a colony of Blues, but that grazing cattle would quickly reduce or exterminate it on open grassland and attributed the disappearance of *arion* from Barnwell Wold to this.

\*Mentioned in *Ent. Record*, Vol. 68, p. 155 (A. B. Farn article).

He also believed that, if a thunder-storm broke during an emergence of *coridon*, subsequent females would show a marked increase of blue scaling.

He was interested in submarines, so one day after looking over *aegon* near Beaulieu Road Station, I drove him over to Fort Blockhouse—*H.M.S. Dolphin*—to lunch with my eldest son; unfortunately we parked (moored, I was told) in the Admiral's Berth! There was a dinner party at Crawley in prospect and C.R. had allowed the same time for our return journey, forgetting that Beaulieu Road is some 20 miles nearer to Gosport than Crawley. We had to move fast, the Riley would do 60 m.p.h. easily, but C.R. preferred not to exceed 45. We reached Crawley just as the ladies were leaving for the drawing-room after dessert, with a good deal of excited chatter. C.R. whispered to me, "I hear the magpies are homing".

Mrs. Russell was taken seriously ill at Crawley, and as always, all collecting was cancelled or deferred until she recovered; heat treatment reduced her suffering—at least temporarily—and they moved to Cranleigh (Sussex) in the autumn of 1945.

C. R. had often changed his abode for what he hoped would prove a better collecting centre, but this was to be his last move. He sometimes said that wherever he went the butterflies immediately left that area, but judging from his letters and exhibits he seldom had a bad year.

At Stokesay, their new home in Cranleigh, neither Castle nor Mrs. Russell were at all well; C.R. was suffering from food poisoning and his wife had a serious recurrence of her internal trouble; their medical adviser was Dr. Kettlewell and on his advice Mrs. Russell was seen by specialists and was moved to Birtley Nursing Home. Mrs. Russell died of cancer on 17th February 1946 at the age of 85, and her ashes were buried in St. Mark's Churchyard at Talbot Village, her birthplace.

This left Castle Russell very lonely, as he had no children, and his elder brother, Arthur, and many of his oldest collecting friends—Crabtree (a link with Farn), Nash, Cliff Wells, Frohawk, Bright, W. O. W. Edwards and Joy had died. It was indeed fortunate that Colonel V. A. Burkhardt, who had known and collected with C.R. since 1930 whenever his Army duties let him stay in England, was able and willing to give up his Admiralty appointment to be free to live with C.R. at Cranleigh during the years when Russell was loneliest and most in need of congenial companionship.

Up to April 1946, C.R. could not get satisfactory help locally and, as he put it, "Much preferred to be without what he could get"; he prepared breakfast, tea and supper himself and they had a mid-day meal at a communal feeding centre. But at his age—he was in his eightieth year and not too fit—this could not go on for long. Indomitable as C.R. was, they had to get a housekeeper and were lucky enough to find Miss Underhill, who looked after them without fussing C.R., drove a car well, and soon acquired enough knowledge of butterflies to help in collecting and even to catch some vars. Castle Russell often mentioned her in his letters and said how grateful he was to her.

Shortly after his wife's death, C.R. said to Dr. Kettlewell "You were very kind to my wife and have been very good to me, and I have a small present I want to give you". He brought out three binders, which held—practically intact—all the original paintings by Buckler for his



"*Larvae*". C.R. had acquired them in his early days of collecting, through the good offices of a Secretary of the Ray Society.

Kettlewell hopes eventually to present them to the British Museum, to be exhibited alongside the amalgamated Rothschild-Cockayne-Kettlewell Collection, in which is now incorporated the Castle Russell Collection.

Early in 1947 C.R. let me take over two ardent collecting friends to see his collection; they were particularly keen to see the larger fritillaries; He was tired and very deaf that morning, and had asked Burkhardt to show the vars. and answer questions. When the first drawer of *paphia* was produced, C.R. remarked, "The top left-hand bug is the type, the rest are vars."

My two friends were astounded, as well they might be; they spent over six hours looking at drawer after drawer and asked if they might come again as time had been too short to study them closely. I had a letter from one of them last Christmas, still recalling his visit; he wrote, "This wonderful man! It was sad that I only met him once, but the experience was sufficient to last a lifetime".

Castle Russell, as mentioned before, had very wide interests and a sound sense of humour; he loved good stories and told them well but preferred to listen. In one of his letters he wrote, "During World War II it was alleged that Winston complained that a certain famous general was after his job. To which His Majesty replied, "Thank Goodness, I thought that he was after *mine*!"

He was delighted with Winston's aside in the House of Commons as a somewhat omniscient M.P. passed him, "There, but for the grace of God, goes God." He capped it with, "The local Hong Kong paper reports that the Americans have put such a tight embargo on imports into the island, that one of the typists in the U.S. consulate cannot get a pair of panties sent to her for fear that it should assist the Communist war effort."

In 1947, C.R. went to Harold Smith's sale and "Brought back the gorgeous *bellargus gynandro*, the most striking I have ever seen; it needed a costly use of the 'Golden Net' to catch it."

Early next year, he refers to *levana* and *prorsa*, which he believed were first put down in Wye Forest by Mr. G. B. Oliver. "I feel that too much stress is laid in putting the entire blame on Farn's shoulders; after all there were only twelve *levana* and six *prorsa* in his collection when sold, and I believe that the usual failure of introducing a species into a new habitat was more the cause of the disappearance of *levana* than were Farn's efforts. Should you have any information on the matter, I should be very glad to have it."

He adds, "The want of a car very much restricted my activities (just as well, according to Kettlewell) but I hope to get amongst the July insects, now that we have a small allowance of petrol; Miss Underhill was successful in netting two nice vars. of *icarus* and *jurtina*."

In a letter of mid-May 1949 he told me, "I have recently acquired about a dozen very rare forms of *coridon*, *bellargus*, *cydippe* and *selene*, some being lovely vars., and I intend this to be the end of my buying, as I really have enough of all species."

\*I had not then seen Farn's note in his copy of Stainton's Butterflies on *levana*, mentioned in *Ent. Record* (A.B.F. article).—S.H.K.



Next year (1950) Kettlewell, returning from 18 months touring in Africa, called in to see him and his next letter said, "K. had a rough time in Egypt on a camel; apparently these animals only stop when a certain word is shouted at them; K. neglected to enquire what the word was and had to suffer a ride of several hours, during which the skin of his back person was jolted off.

"I had much the same experience with a brute of a mule in Portugal; it took me a long way past my destination and up a precipitous mountain track with deep crevices on either side, into which I expected it would fall at any moment. When the beast regained the level, it sighted another mule ahead with panniers on each side which proved to be a lady friend; it was led by a country woman trying to persuade it to go on; my mule charged it and we all came down together. When we got disentangled, I managed to turn my animal's head in the homeward direction, where we both finally arrived, but I did not achieve the object of my expedition.

"These mules are quite impervious to punishment and ignore the reins. Finally we got to know one another and I rode him daily for over a month without mishap, but he insisted on showing me the well known views each day and would sometimes stop to enjoy some smell and I simply had to wait until he was satisfied."

At the end of the letter he added: "You ought to pay a visit to Tring; we went there last Saturday; you would come away dazed by the Tiger vars. alone. The moth collection is astounding and is practically the combined Bright, Farn, Whitehouse, Rothschild, Cockayne and Kettlewell collections; Bright's alone cost £3,000 and Cockayne's share is probably worth double that amount. All are in about 200 sectional drawers, all new, but made out of seasoned mahogany and run as if on roller bearings. It is a truly wonderful lot, but requires a week to go over it. The butterflies are looking much better after renovation by Goodson; . . . but as a National Collection it is a poor affair."

When staying at Dunsfold to collect in Chiddingfold Forest, Castle Russell turned up early the first morning to see if he could help with transport; he had grown a beard, was still a little self-conscious and kept stroking it. We all thought that it suited him.

He and Marcon usually spent a week or so here after the small fritillaries and on this occasion Mrs. Marcon had a very unpleasant experience with a viper which crawled over her shoulder as she leant back against a sunny bank. Very pluckily, she did not move and the reptile soon glided on without doing any harm. When C.R. heard of this, his comment was, "They will not hurt you, if you do not frighten them."

Castle Russell's dislike of unnecessary destruction of life is emphasised in one of his letters:—

"When we lived at Highcliffe, half a dozen rabbits spent their evenings on the front and side lawns and got so used to me that they did not trouble to get out of my way; they rather entertained me. I never had the courage to kill an animal—not even rats, which used to roam round me when I was eating lunch outside the small hut I had erected on one of the islands in the fishing pond at Shepperton-on-Thames; I rented the pond for some 20 years. The rats lived on the

large mussels in the pond, into which they dived to bring them out and eat on the bank. There was always a kingfisher's nest close to the hut and many kinds of birds, including herons and occasionally pheasants, fed and drank close by. The pond had eight islands and now forms part of the Shepperton Film Factory."

Castle Russell's love of birds, beasts and nature is brought out in that letter, but he did hate flies, particularly clegs (*Chrysops caecutiens*), and nearly blinded himself in the New Forest by painting a strong solution of nicotine on his forehead to keep them off; it was hot and the nicotine ran into his eyes. By contrast, hornets and queen wasps went unscathed.

When an invasion of field mice destroyed his larvae and pupae and even ruined table cloths and sheets by nibbling holes, he was forced to take action to rid his home of the pests; but he was very upset and it was with the greatest reluctance that he sanctioned the use of traps and poison.

When 'type' insects emerged, he always took them back to their own locality to release.

(To be continued)

## The Moths of Parley Cross, Dorset. I

(Being Extracts from the Diaries of the late Dr. HAROLD KING,  
C.B.E., D.Sc., F.R.S.)

Edited by H. SYMES

Dr. King came to live at Parley Cross in September 1950, and from then until the end of 1955 he kept a complete record of all the Lepidoptera that he saw in the district.

Parley Cross is a residential area to the north of Bournemouth and five miles in a direct line from the sea coast. The Hampshire boundary is a mile to the east, and just beyond this is Hurn Airport. About half a mile to the south the river Stour flows through meadow land, and a few hundred yards to the north there is, or rather was, when Dr. King first came to Parley, an extensive area of heathland, which is being rapidly cut up into building plots and will soon cease to exist. Dr. King's garden contained some fine old birch trees, and there were oaks, elms, aspens, black poplars and Scots pines in the immediate neighbourhood.

It was not until 15th May 1954 that Dr. King started to use a m.v. light, and he never used a trap, or worked his light after 12.30 a.m. In previous years he had used a powerful electric bulb in his porch, and a Tilley lamp, which he used to carry across the heath, and he also sugared the trees and posts in his garden and the vicinity.

Last year the *Entomologist's Record* published an account of the Lepidoptera of Canford, Dorset, compiled by Mr. Alan Kennard. Since Canford and Parley are only about three miles apart, as the proverbial crow flies, it has been decided, in order to avoid undue multiplication of records, to omit from the Parley list all the commoner species that appear in the Canford list, retaining only a few of the rarer and more interesting ones. Mr. Kennard refers (*Ent. Rec.*, 69: 91) to the gap amongst the Geometers in his list, and by far the greatest number of moths recorded by Dr. King belong to this family.

Between September 1950 and May 1954, he recorded 60 species of moths that do not appear in the Canford list, and between May 1954 and the end of 1955, when using his m.v. light, he recorded a further 74 species. Of this total of 134 species, 87 were Geometrids. The total number of species recorded, including those on the Canford list, was 434, of which 257 were attracted to the m.v. light. The best single night was 30th July 1955, when 78 species were counted on the sheet between 9.45 p.m. and 12.30 a.m., B.S.T. It was a warm night, with the moon halfway between first quarter and full, but hidden behind trees. The second best night was 2nd August 1954, when 72 species came. After a cloudy, warmish day, the temperature from 9.45 p.m. to 11.45, B.S.T., was 60° F., and there was no wind. It was four nights after new moon.

As regards the Sphingidae, both lists contain nine species, but *Acherontia atropos* L. and *Mimas tiliae* L. are absent from the Parley list, which includes the two Bee hawks, *Hemaris fuciformis* L. and *H. tityus* L. Mr. Kennard comments on the unexpected scarcity of *M. tiliae* at Canford, and both this scarcity, and still more its absence from Dr. King's list, are surprising to me, as this is one of the commonest hawkmoths in Bournemouth. *Sphinx ligustri* L. was recorded but once at Parley, and *Laothoe populi* L., *Smerinthus ocellatus* L. (both common at Canford) and *Deilephila porcellus* L. only twice each. *Hyloicus pinastri* L. and *D. elpenor* L. were far and away the most plentiful Sphingids at Parley. *H. pinastri* was recorded on 15 nights in 1954, the earliest being 25th May and the latest 28th August, and on 9 nights in 1955; *D. elpenor* was recorded on 7 nights in 1954 and on 13 in 1955.

Of the Notodontidae, *Odontesia carmelita* Esp. was found as a full-grown larva on a footpath not far from Dr. King's house on 2nd July 1953, and an imago came to light on 30th April 1955. It occurs in some numbers locally on Canford Heath, where Dr. King and Mr. A. C. R. Redgrave took one on 5th May 1955, and Mr. Redgrave and I took six on 10th May 1955. A surprising absentee from the Canford list is the common Buff-tip, *Phalera bucephala* L., for the larva eats the leaves of most kinds of trees, and in Bournemouth, where it is often abundant, I have even found it on *Quercus ilex*, the holm-oak. At Parley, Dr. King recorded the moth twice in 1954 and five times in 1955, besides finding a pupa in his garden.

Both localities are in the middle of *Coscinia cribraria* L. country, and it was recorded three times at Parley, on 2nd and 24th August 1954 and on 25th July 1955. As Mr. Kennard rightly says, it is local on Canford Heath, where Dr. King took eight on 15th July 1955, 2 on 19th July and 1 on 13th August. Since then, this locality has unfortunately been devastated by fire.

An interesting record is that of *Antitype flavicincta* Schiff. on 23rd September 1955. This species seems to be very scarce in the Bournemouth area: it is not recorded in the Canford list, and was never seen by the Rev. F. M. B. Carr at either Sandbanks or Mudeford. All this applies equally to *Stilbia anomala* Haw., netted by Dr. King as he walked across the heath with his lamp on 31st August 1951.

A species Dr. King very much hoped to see at Parley was *Dasy-*

*campa rubiginea* Schiff., but it eluded him to the end. In addition to the specimen recorded by Mr. Kennard, two were taken at m.v. light by Mr. R. H. A. Stewart at Wimborne, on 11th April 1953 and 29th March 1954.

Another species which does not figure in the Parley list, though it was recorded at Canford, is *Brachionycha sphinx* Hufn. But there is a very interesting entry in Dr. King's diary about this species: "8 April 1955, *B. sphinx* emerging at 7 p.m." This moth was one of a brood reared from eggs laid in 1953. Three had emerged in the autumn of 1954, and two more (both cripples) emerged in November 1955, but this spring emergence is surely most unusual.

In his report to the Dorset Natural History Society for 1953, Dr. King referred to Parley Heath as having at one time been the classic locality for *Coscinia cribraria* L., and this species still survived in 1955, but its future and that of other heath-loving species, such as *Agrotis vestigialis* Hufn., *Amathes agathina* Dup. and *Heliothis maritima* Grasl., can only be described as precarious. When Dr. King came to live at Parley, one of his favourite methods of collecting was to walk across the heath with his lamp. In his diary for 1951, twelve such outings are mentioned; the number fell to five in 1952 and then ceased. This was no doubt due in part to the beginning of building operations.

#### SPHINGIDAE

*Sphinx ligustri* L. One: 9.vi.1955.

*Hyloicus pinastri* L. Common.

*Smerinthus ocellatus* L. Two: 6.vii and 10.vii.1955.

*Laothoe populi* L. Two: 10.vi.54 and 12.vii.1955.

*Deilephila elpenor* L. Common.

*D. porcellus* L. Two: 12.viii.54 and 12.vi.55.

*Macroglossum stellatarum* L. 8.vii.51, 26.v.53, 8.ix.53, 22.vi.54, frequent in August and September 1955.

*Hemaris fuciformis* L. One: 2.vii.52.

*H. tityus* L. One: 29.v.52.

#### NOTODONTIDAE

*Odontosia carmelita* Esp. One: 30.iv.55, one larva 2.vii.53.

*Phalera bucephala* L. Scarce except in 1955.

*Clostera curtula* L. One: 26.v.54, "took 3 *curtula* larvae off a small saw, 29.vii.51". These were almost certainly *C. pigra* Hufn.

*C. pigra* Hufn. One: 2.viii.54.

#### THYATIRIDAE

*Tethea duplaris* L. Two: 31.vii.54; 22.viii.55.

*T. octogesima* Hb. Rather common.

*Asphalia diluta* Schiff. Scarce except in 1955.

#### LASIOCAMPIDAE.

*Lasiocampa trifolii* Schiff. One in 1953, one in 1954, not uncommon in 1955.

#### ARCTIIDAE

*Nola confusalis* H.-S. One: 13.vi.55. This is a common species in Bournemouth.

*Sarrothripus revayana* Scop. Three: 29.ix.53, 29.xi.53, 12.viii.54.

*Coscinia cribraria* L. Four: 2.viii.54, 24.viii.54, 25.vii.55; 1.viii.55.

## AGROTIDAE

*Craniophora ligustri* Schiff. Two: 26.vii.55, 8.viii.55. This species is locally common in the chalk area of Dorset, and larvae were plentiful at Bloxworth in 1951.

*Cryphia perla* Schiff. One in 1954; frequent in 1955. A very common species in Bournemouth.

*Agrotis segetum* Schiff. Seven, of which six were second brood, the latest date being 4.xi.55.

*A. vestigialis* Hufn. One netted on Parley Heath 23.viii.51, six at m.v. in 1954, one in 1955.

*A. tritici* L. Common.

*Amathes agathina* Dup. Common.

*A. glareosa* Esp. Five in September 54, one in 55.

*A. castanea* Esp. One in 51, three in 54, one in 55.

*A. baja* Schiff. Common.

*A. ditrapezium* Schiff. One: 13.vii.54.

*A. sexstrigata* Haw. (*umbrosa* Hb.). Not uncommon.

*Diarsia brunnea* Schiff. Three: 26.vi.54, 28.vi.54, 21.vii.55.

*Triphaena interjecta* Hb. One: 25.vii.55.

*Tholera popularis* Fab. Common in 1955.

*Cerapteryx graminis* L. One: 24.viii.54.

*Eremobia ochroleuca* Schiff. One: 25.viii.54.

*Episema caeruleocephala* L. One: 14.x.54. Absent from the Canford list. I have found larvae in some numbers at Bradbury Rings, eight miles west of Parley.

*Luperina testacea* Schiff. Three: 25.viii.54, 20.viii.55, 5.ix.55.

*Antitype flavicincta* Schiff. One: 23.ix.55.

*Apamea ophiogramma* Esp. Two: 2.viii.54, 7.viii.54.

*Gortyna flavago* Schiff. One: 14.x.50.

*Hydraecia paludis* Tutt. One; 24.ix.54.

*Nonagria typhae* Thnbg. One: 18.viii.55.

*N. geminipuncta* Haw. One: 20.viii.55.

*Coenobia rufa* Haw. One: 17.vii.55.

*Arenostola phragmitidis* Hb. One: 1.viii.55.

*Leucania conigera* Schiff. Common in 1954.

*Stilbia anomala* Haw. One: 31.viii.51.

*Panolis flammea* Schiff. One: 3.iv.54. Taken at sallow.

*Cosmia pyralina* Schiff. Six taken in 1955.

*C. trapezina* L. Common: this species is surprisingly absent from the Canford list.

*Zenobia retusa* L. Scarce: one in 1954, three in 1955.

*Z. subtusa* Schiff. Three in 1954; eight in 1955.

*Atethemia xerampelina* Esp. One in 1954; five in 1955.

*Heliothis dipsacea* L. Two: 14.vi.52; netted on Parley Heath (probably *H. maritima* Grasl.): 20.viii.54, at m.v. light.

*H. armigera* Hb. One: 14.ix.50, "came to kitchen light quite early".

*Eustrotia uncula* Cl. Once: several seen on Parley Heath 26.vi.53.

*Zanclognatha tarsipennalis* Treits. One in 1951; rather common in 1954.

*Hypena rostralis* L. Common: larvae also beaten from wild hop.  
*Schrankia costaestrigalis* Steph. One in 1950; four in 1954.

## BREPIDAE

*Brephos parthenias* L. One: 15.iii.1953.  
 (To be continued)

## The Lepidoptera of Derbyshire since 1926

(Continued from page 43)

## Part 4—Geometridae to Orneodidae

By D. C. HULME

## GEOMETRIDAE

Only three Geometrids have been added to the county list since 1926 though the occurrence of another two species, dated earlier but not communicated to Mr. Hayward, here gain admission. The Area tallies for our 183 species, at the time of writing, stand as shown in the table.

Area	1	2	3	4	5	6	7	8
Species	143	114	109	107	109	115	44	56

The coverage for this superfamily is reasonably satisfactory in six of the Areas. Some of these moths are restricted in distribution, *e.g.*, nine are confined to the Mountain Limestone, but are often numerous where they do occur. Several are common or abundant throughout the county (*e.g.*, although only six species are at present noted for all Areas, a further 34 are probably evenly distributed but lack positive records from a single Area).

The five additions are briefly noticed below.

*Sterrrha dilutaria* (Hüb.). One taken by H. N. Michaelis in Millers Dale (Area 4) in 1954 was confirmed by the British Museum.

*S. inornata* (Haw.). Lt.Col. A. M. Emmet took one on Froggatt Edge (Area 5) in 1951, the specimen being confirmed by Mr. Taylor of the Hope Department of Entomology.

*Mysticoptera sexalata* (Retz.). A couple of examples were taken by A. H. Turner near Repton Shrubs on 24th and 29th June 1923.

*Calocalpe undulata* (Linn.). One was found by T. H. Sharrat at Chellaston (Area 2) in 1895 and exhibited at a Midland Railway Natural History Society meeting. The record was confirmed by F. W. G. Payne but was too late for inclusion in his *Catalogue of Derbyshire Macrolepidoptera* published in Volume 28 of *Entomologist*.

*Eupithecia distinctaria* H.S. Single specimens were taken by H.N.M. in Millers Dale in 1937 and 1938.

The following ten Geometrids are mentioned here chiefly because they illustrate interesting types of distribution.

*Sterrrha subsericeata* (Haw.). This species, in common with a number on our list, has been found only in Dovedale. There exist two 19th century and three recent records.

*S. emarginata* (Linn.). There are early records for the two southernmost Areas but R. G. Warren's 1944 Chesterfield (Area 6) specimen is the only 20th century example.

*Lobophora halterata* (Hufn.). Taken on several occasions in the

period 1870-1932 by six observers but not outside Repton Shrubs, a mixed oak/birch/hazel wood under a sq. km. in extent.

*Xanthorhoë munitata* (Hübner). Recorded prior to 1903 on Goyt's Moss by G. O. Day. Confirmed by single specimens taken in 1954 and 1956 by H.N.M. in this high lying district which, since the boundary hereabouts was moved westwards in 1936, now lies wholly in Derbyshire.

*Ortholitha bipunctaria* (Schiff.). Common, as to be expected, in the Mountain Limestone Area though Map 8 in E. B. Ford's *Moths* is misleading in this respect. Odd specimens have been captured in Areas 1, 2, 3 and 6.

*Entephria caesiata* (Schiff.). Regarded as common to abundant in the Central and Peak Grit Areas by fourteen observers including Dr. E. A. Cockayne. Map 2 in the New Naturalist *Moths* should show this southward extension of range.

*Eupithecia palustraria* Doubl. Six Area 4 localities are named for this pug. It has not been encountered away from the Mountain Limestone.

*Opisthograptis luteolata* (Linn.). This must be one of our most abundant Geometrids; it is often a nuisance when dusk. Observed in all Areas, between 19th May (in 1918) and 31st July (1957), and by 29 lepidopterists.

*Biston betularia* (Linn.). Typical specimens are rare in Derbyshire though they seem to be increasing in late years. Ten and three were captured in the Repton School M.V.L.T., along with 68 and 98 *ab. carbonaria* Jord., in 1955 and 1956 respectively.

*Cleora ribeata* (Clerck). One was taken by H. C. Hayward in 1932 in the Shrubs, 21 years after the first and only previous example was discovered at Repton. Common and apparently well established there in 1935-36 and C. I. Rutherford took a couple in 1937.

#### PYRALID AND PLUME MOTHS

B. P. Beirne's map, figure 3, in his *British Pyralid and Plume Moths* quotes a total of 73 species for our county. Mr. Hayward's *Lepidoptera of Derbyshire* (1926) lists 71 of the species mentioned in Dr. Beirne's work (i.e., as I. R. P. Heslop's superfamily *Pyrales* minus numbers 1052 to 1058—the *Choreutidae*). *Alucita tetradactyla* (*tridactyla*) Linn. should rightly have been enclosed in square brackets in the 1926 list but present day Millers Dale captures confirm the occurrence of the species in Derbyshire.

The following eleven species have been added to the county list recently.

*Eudoria* (*Scoparia*) *angustea* (Steph.). First recorded at Repton in 1926 by H.C.H.

*Pyralis* (*Hypsopygia*) *costalis* (Fabr.). I first noted this pretty moth at Littleover (Area 2) in 1948. Two and five respectively were taken in 1956 and 1957 at my 80 watt blended light trap. J. H. Johnson took one at Hepthorne Lane (Area 6) in 1953.

*Dioryctria* (*Nephopteryx*) *palumbella* (Fabr.). Found for the first time in 1947 at Whaley Bridge (Area 8) by H. N. Michaelis.

*Homoeosoma cretacella* Rössl. H.N.M. bred one in 1956 from ragwort gathered in Millers Dale.

*Crambus margaritellus* (Hübner). First recorded in 1937 in the Dale of Goyt (Area 8) by H.N.M.

*C. inquinatellus* (Schiff.). Noted since 1939 by H.N.M. in Millers Dale and since 1949 by R. G. Warren in Dovedale.

*Capperia (Oxyptilus) britanniodactylus* Gregs. Found in 1928 at Ticknall (Area 1) by H.C.H.

*Platyptilia pallidactyla* (Haw.). H.N.M. found this species commonly in 1952 in a restricted locality of Millers Dale and has met with it there occasionally since.

*Alucita baliodactyla* (Zell.). Taken in Dovedale by H. W. Daltry in 1926 and by R.G.W. in 1953.

*Adaina microdactyla* (Hübner). One specimen from Dovedale in 1926 added to the Derbyshire Entomological Society's collection by H.W.D.

*Oidaematophorus (Leioptilus) osteodactylus* (Zell.). A single specimen taken by H.N.M. in Millers Dale in 1956.

Jourdain (1905) and Hayward (1926) remarked that *Pyralis farinalis* (Linn.) and *Aglossa pinguinalis* (Linn.) are "common in most stables" yet the only localized records that I have unearthed for these species refer to Derby and Repton. With the aid of the beautiful plates in the second edition of Beirne's valuable book even sworn Macrolepidopterists could quite easily add a number of these interesting insects to their Areas and improve the position tabulated below for our present 82 species.

Area	1	2	3	4	5	6	7	8
Species	54	39	31	36	2	13	9	26

Mr. Hayward covered the Beeley and Matlock Moors of the Central Grit Area in most spring and summer school holidays of the early 'thirties yet, surprisingly enough, noted no Pyralid or Plume moths in his full reports of these excursions. The two "unhappy" representatives are *Rhodaria (Pyrausta) cespitalis* (Schiff.), reported from Hassop prior to 1905, and *Stenoptilia bipunctidactyla* (Scop.), noted as common by H.N.M. in Bretton Clough, 1948-56.

#### CHOREUTIDAE

We have no record dated later than 1917 for *Choreutis myllerana* (Fabr.) although it was previously reported as common by lake and canal in Areas 1, 2 and 3. *Anthophila fabriciana* (Linn.) is usually common among nettles in Areas 1 to 4 and 8 and must surely occur in the remaining three Areas. Mr. Hayward added *Schreckensteinia festaliella* (Hübner) to the list in 1916 but this species has not been detected in the Repton district, or elsewhere, by any other entomologist.

(To be concluded)

## *Fannia vespertilionis* Ringd. (Dipt. Muscidae) from Bat Roosts

By E. C. M. D'ASSIS-FONSECA, B.Sc., F.R.E.S.

Among some flies kindly sent to me by Dr. C. D. Day in May this year (1957) were a male and two females of *Fannia vespertilionis* Ringd. These three specimens, together with three further females of the same species and two males of the common *Fannia canicularis* L., were found by Mr. R. S. George, on May 6th, on some bat droppings taken from a holed tree at Brockworth in Gloucestershire. I immediately got in touch with Mr. George, who very kindly suggested a visit to some likely



trees at Churchdown, near his home in Gloucester. On May 19th, therefore, in the company of Mr. George and with the agile assistance of two of his pupils, I witnessed the extraction of a male Noctule bat (*Nyctalus noctula* Schr.) and a supply of droppings from a hole about ten feet up the bole of an ash tree on Churchdown Hill. When the droppings were examined, three females of *vespertilionis* were discovered crawling about on the surface of the pile, and several apparently full-grown *Fannia* larvae were found on raking the droppings over. From this material, which was decidedly moist and possessed the characteristic ammonia smell, one male and four females of *vespertilionis* emerged between June 24th and July 3rd.

It is interesting to note that, both at Brockworth and Churchdown, the bat droppings were extracted by hand, only a "pinch" at a time being possible owing to the smallness of the hole through which the operation was being carried out. In spite of such handling, adult flies were brought out on both occasions and, at least in the case of the Churchdown specimens, these seemed loath to leave their breeding ground, and appeared rather as though trying to conceal themselves in the pile of droppings. Their behaviour suggests that the adult flies probably pass almost their entire life within the bat roosts, their apparent scarcity thus being accounted for. Mr. George informs me, however, that the Brockworth roosts, probably old woodpeckers' nests, which were certainly occupied by bats on May 6th, had been taken over by starlings sometime before May 19th, and the colony of bats ousted. The fate of any Diptera, adults or larvae, remaining under the new conditions is a matter for conjecture.

*Fannia vespertilionis*, which is easily recognised by the entirely yellow abdomen and almost entirely yellow legs in both sexes, was described by Ringdahl (1934, *Ent. Tidskr.* 55: 7) from a single female found at the entrance to a bat roost in a holed tree in South Småland (Sweden), and from specimens of both sexes bred from droppings taken from the tree. In 1932, two females had already been captured in Britain, the first by the late Mr. C. J. Wainwright at Moccas Park (Hereford) on August 6th, and the second by Mr. J. E. Collin at Port Newydd (Breckonshire) on August 16th (*v. Collin, 1939, Ent. mon. Mag.* 75: 139-140), but until this year the species has not again been recorded in Britain.

## Notes on Microlepidoptera

By H. C. HUGGINS, F.R.E.S.

*Phalonia affinitana* Dougl. I have recently been corresponding with Mr. S. Wakely about this moth, and he, like myself, considers that some of the information given in 'Barrett' is rather misleading.

Barrett states that the larva feeds in July and September on *Aster tripolium* in the flowers and seed heads, hibernating and pupating in the stems. Tutt (*Practical Hints*, II, 26) says the pupae are to be found in February, March and April in the upper part of the previous year's flower-stalks of *Aster tripolium* on the Kent and Essex saltings.

In my opinion, both these accounts are somewhat misleading, and Tutt's instruction appears very difficult to carry out. The upper parts of the stems in the strongly tidal parts of the saltings which *affinitana*

prefers almost invariably break off in the winter and are washed away. I do not think that the larva pupates in these upper stems in nature; in my experience it begins feeding in the flowers and seed-heads and goes out of these in late summer or early autumn, and burrows into the crown of the plant or the upper root, where it feeds in much the same fashion as that of a *Hemimene*, pupating in the larval burrow in late spring. On one occasion I did breed two rather undersized *affinitana* from flowers and stems, but these were collected in early September and kept in a large flowerpot in the open air throughout the winter and spring, and I have little doubt that two larvae out of many got enough food in the picked stems to carry them through.

*P. affinitana* has now marked melanic tendencies here; about 20% may fairly be described as black. This is a recent development, although there has always been a certain amount of variation in the moth. Barrett (X, 302) says "occasional specimens have a somewhat more leaden tinge".

The moth was common on the Kentish saltings when I lived at Sittingbourne and Faversham, from 1918 to 1928, and when I came here in 1932 I at once found it on the Leigh saltings. In those days it was a buff insect, with a few slightly darker, as described by Barrett; there were no black ones, as in 1933 I took a large number to get a perfect series for W. G. Sheldon. About 1935 and 1936 these black insects began to turn up, and I hoped I might have something new; but Pierce, to whom I sent material for dissection, reported they were only *affinitana*.

*Hypercallia citrinalis* Scop. I was most interested to read that Mr. Morris had taken two specimens of this beautiful little insect at Wrotham in June 1957. I was also interested in the list of old localities he has collected (*Ent. Rec.*, 70: 57), and wonder how many of these were not quite true, purposely placed at a little distance. The only ones I have checked personally (although I have never taken the moth in England I used to know several collectors who had) have all been on calcareous soil, either chalk or limestone. Bower I know took it at Shoreham, and both Farn and Farren, the Cambridge professional, at Kemsing, but I have my doubts about Darenth and Chattenden, both heavy clay. It seems very curious that Tutt, who gives references to the insect in *Practical Hints* (I, 14 and 41, published 1901, and III, 59, published 1905) quotes Shoreham (Walsingham) and Kemsing as localities, and does not mention Chattenden.

I visited Chattenden dozens of times from 1901 to 1910 and neither saw the insect nor ever heard it mentioned; although both Farn and Bower had been habitués of the place in the past they always referred to it as an inhabitant of the chalk of the Darenth valley (Shoreham, etc.). There is nothing inherently impossible about Chattenden as a locality, as *Siona lineata* Scop., usually considered a chalk insect, was found there (I have still one in my cabinet which I took there in 1902), but I feel sure that if *citrinalis* had been there in comparatively recent times I should have heard, and have little doubt Tutt's "Chattenden" was a *nomme-de-guerre* for some neighbouring chalk locality. It is odd he did not quote Chattenden in *Practical Hints* if all were as it should be.

[Our authority for the Chattenden locality was based on conversation

with the late S. R. Ashby, who informed us that this was the place where Tutt took *citrinalis*; our specimens were simply labelled "Tutt Coll." and we added "? Chattenden" on the strength of that information.—Ed.]

## Notes on the Tineina

By S. WAKELY

*April*.—Although as a general rule it is best to rear the smaller moths, there are several exceptions where it is easier to net the perfect insects as they fly in the sunshine or box those settled on fences and tree trunks. *Adela cuprella* Thunb., for instance, flies round willow bushes on sunny days, but is little known nowadays. It still occurs in the New Forest and used to be found on Wimbledon Common. No doubt its occurrence so early in the year and also the fact that it flies only on sunny days explains why it is so seldom taken. Another species which occasionally occurs in numbers in April is *Telphusa aethiops* Westw. Most of the books give this as a May species, but it was taken last year on 11th April by Mr. R. Fairclough in Ashdown Forest, Sussex, who found it in numbers flying over heathy ground which had been burnt during the previous year. I have also taken one myself on 30th April at Ash Vale, Surrey, a rather worn specimen which had probably been on the wing some days. A very local but dull-coloured moth is *Amphisbatis incongruella* Stt. This is also on the wing on sunny days this month, and I have taken a few specimens only at Oxshott and Wisley, Surrey. The larva is unusual in that it lives in a portable case and feeds on *Calluna*. Another moth to be taken on the wing this month is *Coleophora leucapennis* Haw. (*murinipennella* Dup.). It is attached to the common *Luzula campestris*, and can be disturbed from herbage where this plant is common or netted by sweeping. There are half-a-dozen species of Eriocraniinae to be searched for, all of which fly round birch trees in the sunshine. Under the lens they are beautiful moths and in my opinion rather difficult to determine to which species they belong. In addition to the birch feeders there is one on hazel and another on oak.

Many larvae of the Coleophoridae can be found this month. The leaf-feeding species all make white or brown blotches on the leaves, feeding on the underside so that the larval case is not visible till the leaf is turned over. The feeding places show a neat round hole in the centre of a discoloured patch, the larva feeding by mining the leaf, reaching in as far as possible without leaving its case. When it has attained the limits of its reach the case is removed to another place and the operation starts all over again. Where a number of larvae congregate together the feeding places are most conspicuous and the larvae easy to find. *Coleophora solitariella* Zell. causes large white blotches on leaves of *Stellaria holostea* and the white cases are often numerous, while *C. olivacella* Stt., which makes a brown case, usually occurs singly on the same plant. The name *solitariella* would certainly appear to be more appropriate to the latter insect. It is not too late to find larvae of *Phthorimaea tricolorella* Haw. in spun stitchwort shoots when searching for these two Coleophorids.

On commons and heaths large patches of sorrel are often seen. If the ground round the plants is examined with care the larval webs of *Gelechia diffinis* Haw. and *G. velocella* Dup. can often be found. Slight silken tubes are made by the larvae on the surface of the ground, and although the latter species is more local, larvae of both can often be found in numbers and they are easy to rear.

On the salterns larvae of *Phthorimaea instabilella* Dougl. can be taken freely on *Atriplex portulacoides*, the white mines in the leaves being easy to detect. *P. maculea* Haw. larvae can be found by taking samples of the seed capsules of *Stellaria holostea*, the attacked seeds usually being darker in colour than the others. If notice is taken of the seed-heads of the great reed mace it will be seen that many of these are fluffed out and very untidy looking. By gathering a few of these, *Limnoecia phragmitella* Stt. can be bred during July.

Larvae of *Stephensia brunnickiella* L. can be found in leaves of *Calamintha clinopodium* towards the end of the month. The leaves of this plant are very similar to those of marjoram, but the dead seed-heads are very different—somewhat like *Stachys*. By looking for these seedheads the young plants can usually be detected nearby. Brown blotches denote the feeding places and the larvae can be easily detected if present in the mine by holding the leaf up to the light. Pupation usually takes place in the turned down edge of a leaf opposite one showing a mine. This is a brightly coloured moth, and occurs freely on the North Downs near London.

The Elachistidae run into nearly forty species recorded from Britain. The larvae feed in mines in grasses, sedges, etc., and can be found from April onwards. They pupate outside the mine as a rule, with no cocoon, fastened to base of foodplant by tail and middle girdle of silk, reminding one of the method employed by the white butterflies. The mines can be seen as white channels in the grass stems and are easiest to see in dull weather. One of the early species is *Elachista cinereopunctella* Haw. which I have taken in numbers on Riddlesdown, Surrey. The foodplant is *Carex glauca* and the best place to search is round the junipers. They invariably pupate at the base of the leaf in which they had their mine.

Where gorse is well established the larval webs of *Scythris grandipennis* Haw. are often common, but secateurs are needed to cut out the prickly portions housing the larvae.

Both *Ocnerostoma pinariella* Zell. and *Cedestis farinatella* Dup. larvae feed internally in the needles of Scots pine and can be found in those coloured yellow or white. When the fir branches are beaten the green larvae of the latter can often be obtained when full fed. If the branches of larches are examined this month many of the tips will be found to be withered and dead. If these are cut off and kept *Argyresthia laevigatella* H.S. should emerge during May.

I would like to mention another interesting species which can be taken this month. This is the very local *Meessia richardsoni* Wals., the larval cases of which can be found under the large slabs of stone at Portland in Dorset. The cases are rather flat and the same colouration as the stones, but numbers can usually be found with careful searching. The broken ground at Church Ope Cove is a good locality.

## Current Notes

These 'Current Notes' are contributed as a rule by Mr. Allan, who is responsible for the opinions expressed in them. Any criticisms of them should be addressed to him. Those Notes contributed by the Editor or other correspondents have initials appended to them.

A few days ago while turning the pages of one of the early natural history magazines which began publication so long ago as 1829, we were struck by the acerbity with which the entomologists of that era attacked each other over the matter of the 'trivial' or specific names of insects. The bitterness with which the Battle of Names was fought reads strangely today; a hundred and fifty years ago men did not mince their words in argument, whether orally or in print. (Had they not recently defeated Napoleon, and were they not on the way to becoming top dog of Europe?) The fighting was brisk—and not always according to rules such as govern 'sporting events' today. Those who opposed Priority and preferred names of their own selecting were attacked as goths, vandals, iconoclasts and so on. After the 'forties the acerbities moderated, to flare up again with the discovery of Hufnagel's magazine articles. Even today there are entomologists, or rather nomenclators, whose very names are detested by others of their pursuit.

To those of us older ones to whom the insect is the thing, not the name, the wrangles—perhaps it would be more courteous of us to call them 'discussions'—about the names, have become tedious to the point of exhaustion. All that we entomologists require and all that we ask for is that every insect shall be given a name by which it can be referred to in our correspondence and in the literature of Entomology. Its own private and particular name in fact. If the professional nomenclators are unable to do this they should resign and give place to more accomplished men. At present their labours seem at times to come dangerously near to making "confusion worse confounded". Witness the foolishness of changing the names of the Dark Green Fritillary to *Mesoacidalia charlotta* since every lepidopterist has associated *Acidalia* with a genus of moths for at least 120 years and the name *aglaia* with this insect for wellnigh 200. Could anything be better calculated to confuse and infuriate? There is an old saying "Too many cooks spoil the broth". We do not know how many cooks there are at present engaged in cooking the names of our insects; but judging by the broths which they have brewed so far there must be hundreds and hundreds of them. This is not good for a science. It is still less good for the prestige of the cooks.

During the last sixty years or so another problem of nomenclature has arisen, the naming of varieties or 'vars.' or aberrations as they are variously called. We grant that the bestowing names on aberrations of the Blue Butterflies by Messrs. Bright and Leeds has been the means of bringing great pleasure to those many collectors who have become specialists in these particular butterflies. It has added immeasurably to their enjoyment of a day's hunting on the downs and in those spots where *Lysandra coridon*, *L. bellargus* and other Blues are to be found.

But this sideline of Entomology has now expanded to such an extent that even the smallest aberration of a wing-marking, whether in butterflies or moths, must needs have a name. It matters not at all whether the 'aberration' be as common and widespread a thing as a man whose ear-lobes are attached to his cheeks or a dog born without dew-claws.

The late Mr. Castle Russell, as confirmed a specialist in the collecting of butterfly aberrations as ever was, himself dispraised the giving of "aberrational names" to insects which showed either a very slight abnormality (perhaps not genetic) or to others which were so common in certain species as to make it difficult (in his own words) "to find two exactly alike". A month or two ago we printed an excerpt from one of his last letters which expressed clearly his opinions on this subject—so clearly indeed as to remind one of some of the forthright utterances to which we referred at the beginning of these Notes. But the collector whom he singled out for admonishment will not be unduly perturbed: there are two sides to every question, and if there are some who hold that this aberrational naming has already been carried far enough, there are others to whom the procedure undoubtedly adds pleasure to their collecting. And after all, it does no great harm.

## Practical Hints

The late William Fassnidge and the late Dr. Harold King left many interesting notes in their entomological diaries, and we have been accorded permission by their widows to print some of these notes in the Record. This month the notes are from the diaries of the former.

There is hardly a year when the finding of hibernacula of *Limenitis camilla* L. is not recorded in January and February; on one day he mentions finding 18. He once told me to look first for the hibernacula on the growth of honeysuckle at "cross roads" of woodland rides and Mr. Symes has since commented that in his experience the larvae of this species seem to prefer the longer trailing growths to the dense clumps sometimes seen.

There is an interesting reference to an occasion when digging for pupae near Chesham he found two pupae of *Mimas tiliae* L. in a Thrush's nest five feet from the ground in an elm.

This year being of even date the tallows should be searched for the mines of *Aegeria flaviventris* Stgr. The larva causes a small gall similar to that of the larva of the beetle *Saperda populnea* and some experience is necessary to distinguish one from the other. The insect is much less plentiful now than when Fassnidge first discovered it in this country more than 30 years ago, for he records having counted no fewer than 117 mines in a single day in one locality between Eastleigh and Winchester and a further 85 a few days later in another nearby locality. It is worthy of note that by 1936 in localities near Southampton he was recording it as "very scarce indeed." The contention that one should search for this larva only in years of even date because of the two year life-cycle is frequently contested, but it is noticeable that

practically all Fassnidge's references to this species are made in the last months of the odd years or the early months of the even years.

Concerning the larvae of *A. andrenaeformis* Lasp. which mines the stems of *Viburnum lantana* (The Wayfaring Tree) he comments, after finding many old exit holes, that the favourite trees appear to be those growing in hedgerows in fairly exposed positions, particularly heavy infestations being noted in stems which had been twisted or broken as a result of children having roughly pulled them down to pick the flowers.

Although primarily a lepidopterist specialising in the "micros" Fassnidge was also interested in other orders and there are many references in the years 1927 and 1928 to the longhorn beetle *Mesosa nubila* Gmel. All the specimens were found in the wood of felled trees left to rot on the ground or in the rotten wood of fallen limbs.

A. C. R. R.

## Notes and Observations

**LEUCANIA OBSOLETA HÜB. IN YORKSHIRE.**—On the night of 29th June 1957 an unfamiliar looking 'wainscot' was taken from a m.v. light-trap operated near a large reed-bed at Skipworth Common, Yorkshire. It was left on the setting-board (duly labelled) until November, when it was shown to Dr. H. B. D. Kettlewell on his visit to Yorkshire, and he identified it at once as a female *Leucania obsoleta* Hüb.—J. BRIGGS, 15 Frimley Drive, Little Horton, Bradford, Yorks. 28.ii.58.

[Can any of our Yorkshire readers tell us if there is any previous record of this insect taken in Yorkshire?—ED.]

**CHILODES MARITIMA TAUSCH. AND MYTHIMA TURCA LINN. IN SOMERSET.**—A male *C. maritima* Tausch. was found in the m.v. light-trap on the morning of 6th July 1957 in the garden of a guest house at Porlock, Somerset. At the same place and situation on the morning of 16th July 1957 a male *M. turca* was in the trap. The nearest reed-beds I could find were about a mile away.—J. BRIGGS, 15 Frimley Drive, Little Horton, Bradford, Yorks. 28.ii.58.

**LEPIDOPTEROUS OVA PASSED THROUGH A ROBIN.**—In a letter to us, Dr. Skat Hoffmeyer, Bishop of Aarhus, drew attention to a note in *Lepidopterists' News* which, quoting an article published in the Danish *Flora & Fauna* magazine, 1954, p. 122 *et seq.* This note by P. L. Jorgensen gives an account of fertilized female imagines of the psychid moth *Acanthopsyche atra* L. being fed to a robin (*Erithacus rubecula*) kept in captivity. Its foecal droppings were collected during the ensuing twenty-four hours and were placed in a special breeding cage where they were kept moist by occasional light spraying with water. A fortnight later the first of 30/40 larvae of *A. atra* emerged from the droppings. The note points out that this is but a small proportion of the ova fed to the bird in the female psychids, but the author points out that the result of the experiment is enough to show that dispersal of the species can be and probably is achieved in part by the agency of birds. The act dealing with caged birds would exclude

robins from such an experiment in this country, but there is no reason why something similar might not be achieved by experimenting with legitimately cageable birds, although such birds will, we expect, be found to have a strong preference for vegetable diets.—S. N. A. J.

**LARVA RACING.**—The story of workmen setting *Cossus larvae* to run races, quoted by Mr. G. E. Hyde (*Ent. Rec.*, 69: 250) reminded me of an incident that occurred some years ago at a school where there was a flourishing Natural History Society. Some of the boys possessed a number of larvae of *Malacosoma neustria* L. These larvae become very active when they are nearly full-grown, and their owners, observing this, decided to hold races between their 'stables'. The larvae were given some kind of training over the course (a table in the school hall), form was carefully studied, odds were laid, and a day was fixed for the great event. But unfortunately, when the day arrived, the meeting had to be called off, as it was found that all the favourites had spun up during the night.—H. SYMES, 52 Lowther Road, Bournemouth.

**MOTHS SPARSELY DISTRIBUTED OR NOT PREVIOUSLY RECORDED FROM CUMBERLAND AND NORTH WESTMORLAND.**—For record purposes I append a list of the more interesting moths taken in Cumberland and north Westmorland in 1957. I am grateful to Mr. R. M. Mere, Mr. J. D. Bradley, and others at the British Museum for identification of some of these insects.

*Hydraecia paludis* Tutt refers to two specimens from an old collection. These had not been recognized and are from inland localities (Carlisle and Hayton).

Sparsely distributed species include: *Tethea fluctuosa* Hb., *Euxoa cursoria* Hufn., *Rivula sericealis* Scop., *Thera cognata* Thun., *Mysticoptera sexalata* Retz., *Bapta temerata* Schf., and *Pterophora isodactyla* Zell.

Apparently new to the area are: *Diarsia florida* Schmidt, *Procus latruncula* Schiff., *H. paludis* Tutt, *Eupithecia innotata* Hufn., *Crambus uliginosellus* Zell., *Mompha raschkiella* Zell. and *Ochsenheimeria bison-tella* Zell.—W. F. DAVIDSON, 9 Castlegate, Penrith.

## Current Literature

**THE AQUATIC COLEOPTERA OF THE WESTERN SCOTTISH ISLANDS WITH A DISCUSSION ON THEIR SOURCES OF ORIGIN AND MEANS OF ARRIVAL.** By Frank Balfour-Browne. (*Reprinted from The Entomologist's Gazette*, 4 (1953): 79-127. 6s.

This is the latest and one of the most important of the many local and regional surveys of British water beetles by the foremost authority on the subject. Island faunae—even the wholly derivative faunae of non-oceanic islands—have a peculiar interest because of the problems they raise, both special and general, whose nature is sufficiently indicated in the title of this work; while such studies can suggest possible answers to still larger zoogeographical questions. The paper, therefore, falls into two equal parts, each of 20 pages: presentation of the



facts with the interpretation proposed for them, and review of evidence from wider sources from which certain pertinent conclusions are drawn.

After some preliminaries the author lists the 39 islands for which he has water-beetle records, with the number of species for each, followed by a list of the 93 species with the records of each shown under the four groups of islands (Outer Hebrides, North, Mid, and South Ebudes) and various other analyses. He concludes that all evidence points to the continual movement of individuals between the islands and also between them and the mainland, throughout the post-glacial period, and that the factors governing survival of a species in any given habitat are incessantly changing. With three exceptions, the species occur on the mainland of Scotland and northern Ireland, and most of them appear capable of flying across the considerable stretches of sea from either of these land areas to the islands with or even without the help of a favourable wind. The exceptions are three very extraordinary occurrences: *Deronectes canariensis* Bedel (a pair on Barra, 1936), native to the Canaries only; *Hydroporus foveolatus* Heer (several on Rhum, 1938-9), from the high mountains of South Europe; and the Gyrinid *Aulonogyrus striatus* F. (Raasay, several, 1936; Baleshare, one, 1938) from the Canaries and the Mediterranean region. They are the only British records of the species. The rest of this section consists mainly of detailed notes on selected species, in which their occurrence in the islands is related to their wider Britannic distribution.

In the second half, the discussion ranges over a large field and no considerations relevant to the question of aerial transport of organisms over long distances are neglected. Much valuable evidence is marshalled and brought to bear on the central problem. It is dealt with under the headings of *Dispersal of Animals* (introductory), *Casual Dispersal* (a very long subdivided section), *Occasional Mass Movements or Swarming*, *Normal Migration*, and *Climatic Disturbances as Means of Transport*. There is also a final section on colonization, the Lepidoptera, etc., of the Western Isles, and Miss D. Jackson's work on the flight of water beetles. Prof. Balfour-Browne condemns as wild and needless speculation the hypothesis of 'land-bridges' put forward by Beirne and others to account for seemingly awkward facts in the distribution of our transportable fauna and flora, and likewise rejects Forbes' theory of successive invasions. He infers that the water-beetle fauna of the Western Isles is overwhelmingly post-glacial in origin, that it has been built up by cumulative (but not necessarily regular) migration from the mainland—Scotland and Ireland—and that it is undergoing perpetual modification (e.g. by the arrival of a fresh species which may contrive to find an ecological niche left vacant by the dying-out of an older colonist). The presence of the three southern species referred to above is most simply explained, he suggests, as resulting from the action of abnormal air currents, hurricanes, and summer whirlwinds of high lifting power—which may operate over great distances. A summary and copious bibliography conclude this excellent and thought-provoking piece of work.

A. A. A.

**HIPPOPHAE RHAMNOIDES.**—With reference to the editorial note 69: 219, Mr. Parkinson Curtis points out to us that the thorns of this bush pierced his clothing, including puttees protecting his legs, and he adds that the wounds soon became pustulent. Our note referred more to the reputed poisonous quality of the fruit which is not borne out in fact. We also are well acquainted with the very spiteful thorns which are long, strong and sharp, but, so far as we can recollect, our wounds were painful but not pustular. Possibly Mr. Curtis's thorns were infected by some streptococcus not found at home, and against which he had consequently no natural protection.—**EDITOR.**

## Fifty Years Ago

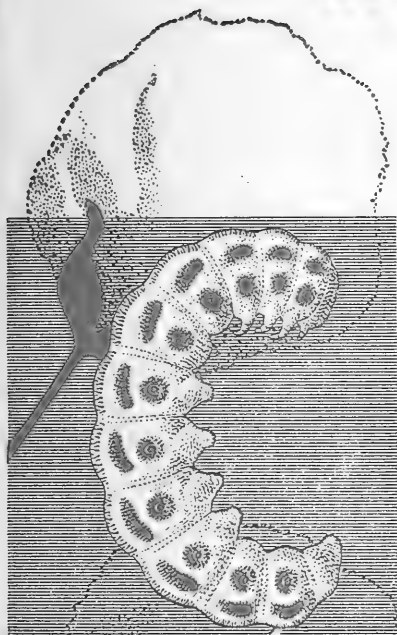
(From *The Entomologist's Record* of 1908)

**LYMANTRIA MONACHA L. NOT IN THE HULL DISTRICT.**—Your suggestion that *L. monacha* probably does not occur in the Hull district is quite accurate, nor has it, to our knowledge, ever done so. In 1892 I obtained a dozen eggs from Mr. Edmonds, of Windsor, from which I bred some typical, some intermediate, and one black example. I paired the black with one of the intermediate forms, and obtained a large batch of ova. These I gave to Mr. Potts, a local lepidopterist, and he has inbred large numbers of the race every year since, and these, unfortunately, appear to be accepted as Hull specimens. Mr. Edmonds said he took the black form in Windsor Forest, but the evidence later went far to prove that they were really from continental stock. All the *L. monacha* sent out of Hull are, therefore, not only not native Yorkshire specimens, but possibly not even of British origin, although inbred here so many years.—**J. W. BOULT, Hull.**

**PATRICIAN TASTE OF TORTRIX PRONUBANA HÜB.**—This year I have bred two *T. pronubana* from strangely different plants, cyclamen and scarlet geranium. In both cases I found the larva feeding, and covered the pot in which the plants were growing with muslin, and awaited results. On May 6th a fine female emerged from the pot of cyclamen, and on May 31st a female from the scarlet geranium. I know now that I have often found the larvæ and also empty pupa-cases on a bed of geraniums, but not ordinarily paying attention to Tortricids I have not bred the insect from this plant before.—**F. E. LOWE.**

**A MATTER OF SIZE.**—In the Report of the Entomological Society of Ontario, 1907, there is an account of a most amazing abundance of the larvae of *Peridroma saucia* at Leamington, Ontario, at the end of July. They devastated the tobacco and tomato crops, and Mr. Moore "counted as many as 250 caterpillars on a single plant". This is the way to get a series. One would like to know the size of that tomato or tobacco plant and the size of the larvae. If it were a small plant and the larvae well grown it would be bad for both larvae and plant; but if the larvae had just left the egg, well, we have ourselves seen 300 larvae of lots of species on a moderate sized leaf!—**J. W. TUTT.**

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## EXCHANGES AND WANTS

*Cambridgeshire Lepidoptera*.—Records wanted for new County list in preparation. Butterflies, Pyralids and all Chippenham fen records particularly wanted. Full acknowledgment will be given.—*Brian O. C. Gardiner, 43 Woodlark Road, Cambridge.*

*Wanted*.—Second-hand Robinson type mercury vapour lamp trap.—*J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent.*

*Wanted*.—An examination of the Coleoptera section of the General Science Museum at Merchant's Taylors School shows that there are a great many gaps in it. Can any Coleopterist readers of the *Record* assist by sending some of their duplicates?—*G. Lucas, 17 Munden Grove, North Watford, Hertfordshire.*

*For Sale*.—Unused 125W. High Pressure Ultra-Violet Lamp (Wood's Envelope) with Choke and Fittings, £6.—*L. G. Stimson, 26 Pemberton Road, Lyndhurst, Hants.*

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Dr. Kettlewell regrets that, due to the fact that he has unexpectedly to go to Brazil in connection with the Darwin Centenary, he will be unable to write individually to the various people who are helping him in connection with the survey of Industrial Melanism. He would be most grateful, however, if they could continue to keep records in his absence of all those species about which he requested information last year. He hopes to be back at the beginning of May.

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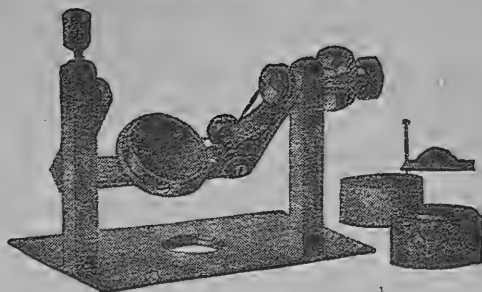
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d'ASSIS-FONSECA, F.R.E.S.

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## TO OUR CONTRIBUTORS

All material for the magazine should be sent to the Editor.

EXCHANGES and ADVERTISEMENTS to F. W. BYERS, 59 Gurney  
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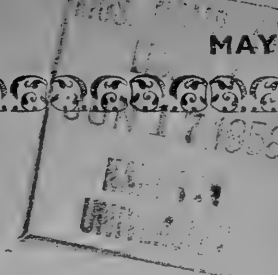
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# The Brown Argus Butterfly, *Aricia agestis* Schiff., in Great Britain

By T. W. JEFFERSON

There can be very few of our native butterflies which have raised so much conjecture as to their evolution and pedigree as the Brown Argus, *A. agestis* Schiff. Just over 100 years ago George Wailes gave his view regarding the significance of what we now call the hybrid race of the North East Durham coast, and this might be said to summarise the end of the first chapter of the *agestis* treatise. Of that chapter there had been many eminent authors, field workers and entomologists of considerable repute—Logan, Westwood, Zeller, Lowe, Haworth, Harding, Jordan, Curtis, Wallis, Edward Newman and J. F. Stephens among the many—who had found *agestis* intriguing and fascinating. In our own time Heslop Harrison, E. B. Ford and a host of other outstanding field workers, eminent among them A. E. Wright of Grange-over-Sands and William Carter of Newcastle-upon-Tyne, have given patience and thought to the study of this insect. Interest has not yet flagged and the Brown Argus still has its devotees no less staunch than those of *coridon* or *bellargus*.

It is not surprising that interest and curiosity in *agestis* has been lively and sustained in the North East of England more particularly than elsewhere. The white spotted "*artaxerxes*" was discovered there in 1827 and from that time the demands of collectors all over the country were gratified. Previously, *artaxerxes* was a great rarity and almost all specimens came from Arthur's Seat outside Edinburgh, where it had been discovered about 1813. The presence of both forms of the insect on the Durham coast immediately aroused the curiosity of those who did more than merely collect specimens. It was not, however, until almost 100 years after its discovery in Durham that the increasing knowledge of genetics, geology and the morphology of the insect itself made it possible to put forward the first satisfactory theory regarding its racial origin and presence in the Durham coastal area. It is in keeping with the predominant interest of the North East in its "Castle Eden Argus" that this theory should be made by one of the North East's most eminent biologists.

The story of how George Wailes sent specimens of Durham *agestis* to his friend Stephens and how Stephens decided that he detected an intermediate species whose females had white discal spots is a classic of entomological history. Wailes himself told the story in the note on *agestis* in his *Catalogue of the Lepidoptera of Northumberland and Durham* in May 1857. Stephens had in 1831 given the apt name "*salmacis*" to what he was convinced was a separate race found only in the Durham coastal colonies. Wailes decided that this was erroneous. He discovered white-spotted *agestis* of both sexes in his field studies and concludes, "I think I am justified in writing the three forms of this butterfly"—i.e. *agestis* of the South of England, *agestis* and *artaxerxes* of the Durham coast, and the Scottish *artaxerxes*—"under the single name of *agestis*; and in doing so it affords me great satisfaction to be enabled to state that our first British Lepidopterist, Mr. Doubleday, to whom I have submitted these remarks,

concur." It is interesting to note that up to the time of the publication of Wailes' *Catalogue* the larva of *agestis* had not been discovered in this country.

From the time of the publication of this *Catalogue* until 1924 very little controversy disturbed the taxonomic life of the Brown Argus. When J. E. Robson published his *Catalogue of the Lepidoptera of Northumberland and Durham* in the *Transactions* of the Natural History Society of those counties in 1899, he re-affirmed, from his own experience, the decision of Wailes. *Agestis*, *salmacis* and *artaxerxes* were one and the same insect. He mentioned, incidentally, that he sent larvae to Buckler from Blackhall and from these Buckler raised imagines with each form of the insect facies. Presumably the figures of the larvae in Buckler are from these N.E. Durham specimens.

In 1924 Heslop Harrison presented his notable thesis on "The British Races of *Aricia medon* (Esper.) with Special Reference to the Areas in which they overlap" (*Trans. Nat. Hist. Soc. Northumberland, Durham and Newcastle-upon-Tyne*, Vol. VI, Pt. I). Heslop Harrison still remains the doyen of all who have contributed to the symposium of theories on the evolution of the British *A. agestis*, and into this exposition he brought to bear his great knowledge of biology and genetics. He was ably assisted by William Carter, who was one of the most active of field workers in his day. Carter made the Durham colonies of *A. agestis* his life interest. The pages of *The Vasculum* (journal of the Northern Naturalists' Union) and of *The Entomologist* between 1921 and 1939 were regularly taken up by contributions and records by Carter, who described the many variations of the butterfly which he had taken in the coastal stations. He made several worthy efforts to name, systematize and collate the lines of variations in the insect facies, and some of these efforts are, strangely enough, not unlike the work of Messrs. Leeds and Bright on *L. coridon*. Over these years there lived another field worker, Albert E. Wright, of Grange-over-Sands, whose interest in *agestis* in the Furness area was lifelong. His records and observations, summarized in an article in *The Entomologist* of April 1941 (Vol. LXXIV), are in large measure a complement to the work of Carter.

In his "British Races of *A. medon*, Esper.", Heslop Harrison showed that the facies of *agestis* were not necessarily any indication of its racial unity or divergence. He looked at the insect from its genetical complex and sought for a reason from this angle for the presence of the *artaxerxes* form on the Durham coast. He looked also to genetics for the explanation of the considerable variation of the insect in these coastal colonies and saw in them the overlap of two races of the butterfly. Concerning the nomenclature of these forms, he wrote elsewhere "the real solution of the difficulty rests in a recognition of the fact that each and all . . . no matter what its phenotypical guise, may be of vastly different genetical composition . . . and we regard them as better represented by genetical formulae than by names".

In his thesis he considers three probable reasons for the distribution of *agestis* and *artaxerxes*.

1. That in the mixed population of the Durham coast lies the origin of both typical *agestis* and *artaxerxes*.

2. That successive mutations, orthogenetic in their trend, occurred as the species migrated northward through Britain until the white discoidals became consistent over the Border.

3. That *artaxerxes* arose as a mutation, casual or otherwise, which by infiltration replaced the main stock in Scotland and Ireland and affected it elsewhere.

He decided that the third explanation was the most likely. "We believe", he wrote, "that *artaxerxes* originated during isolation and that branches of one and the same species, severed long enough for very strong racial characteristics to be impressed upon one of them, have come together so that interbreeding has become possible".

Heslop Harrison concludes his thesis with an eight-part summary.

1. In the British Isles *Aricia medon* (= *agestis*) exists in two distinct races, the Central European type and the form *artaxerxes*.

2. The latter is almost confined to Scotland and Ireland and the former to England and Wales.

3. However, on the Durham coast, the two races overlap.

4. The population there shows true intermediates to which the names *albiannulata*, *salmacis*, etc., are applied, but segregation occurs, for pure *medon* and *artaxerxes* are to be taken constantly and in goodly numbers.

5. Similar populations fail in the west of England because the contact between *medon* and *artaxerxes* has been but slight.

6. The inheritance in the overlapping areas is Mendelian.

7. If factorial differences are involved they are but few.

8. *Artaxerxes* originated, in all probability, in a contingent of *medon* isolated during the Glacial Period.

The appearance of the insect with the true facies of *artaxerxes*—having the white discoidals of the "Scottish White Spot"—may be looked upon as the optimum end of the orthogenetic sequence of white scale variation. With it fly also the intermediates of the sequence: *albiannulata* (white rings around the upperside forewing discoidals) so often still referred to as "*salmacis*"; *garretti* (*albiannulata* with white discoidals on the upperside hindwings—a reflection of the variety *quadripuncta* of *artaxerxes*) named in 1929 by Heslop Harrison and Carter in honour of Dr. F. C. Garrett; *quadri-albiannulata* with the four discoidals surrounded by white scales. Specimens occur with underside forewing discoidals white and upperside discoidals *albiannulata*. It should be noted that all except more rarely the last of these intermediate forms are found today with equal frequency in the Durham inland colonies, in the Furness area of the West of England and near to Kirby Stephen in Westmorland. The form *albiannulata* is found less frequently elsewhere in Britain. In Durham away from the littoral, in Furness and in Westmorland, there has been contiguity with *artaxerxes* but not overlap.

The hybrid *artaxerxes* comprises roughly 5% of *agestis* populations at the height of the flying season in the present small and precarious colonies of the Durham coast from Dawdon, near Seaham Harbour, to Hartlepool. These colonies, according to Heslop Harrison, represent the western fringe of the area occupied by the *artaxerxes* population which migrated in the later Holocene period from beyond

the north-west of Ireland into Scotland and around the glacial massifs to occupy the area to the south-east. They met and overlapped the northward migration of the European *agestis* which had followed on the melting snows. It is interesting to note that these colonies occupy a coastal strip less than 100 yards wide from the foreshore; many are in dene mouths or in hillocks of sand just beyond the tidal limit. Although *agestis* is found within 15 miles from the Durham coast at places such as Sherburn and Cassop, there has never been a single record of the appearance of the *artaxerxes* form in any of these stations.

It is important to note in "The British Races of *A. medon*" that Heslop Harrison refutes the assumption that there is any relationship between *albiannulata* taken elsewhere and the "genuine *albiannulata*" of the Durham coast. All *albiannulata*-like insects are not of the same genetic composition. He points out that if this were not true, he would expect the *artaxerxes* form to appear in areas like Arnside and Witherslack, where *albiannulata* is fairly common and casual pairings of *albiannulata* must occur. The white-ringed form found elsewhere in this country and in Europe is merely a recurrent *Lycaenid* variation, as is also the *albocincta* variation of *L. coridon*.

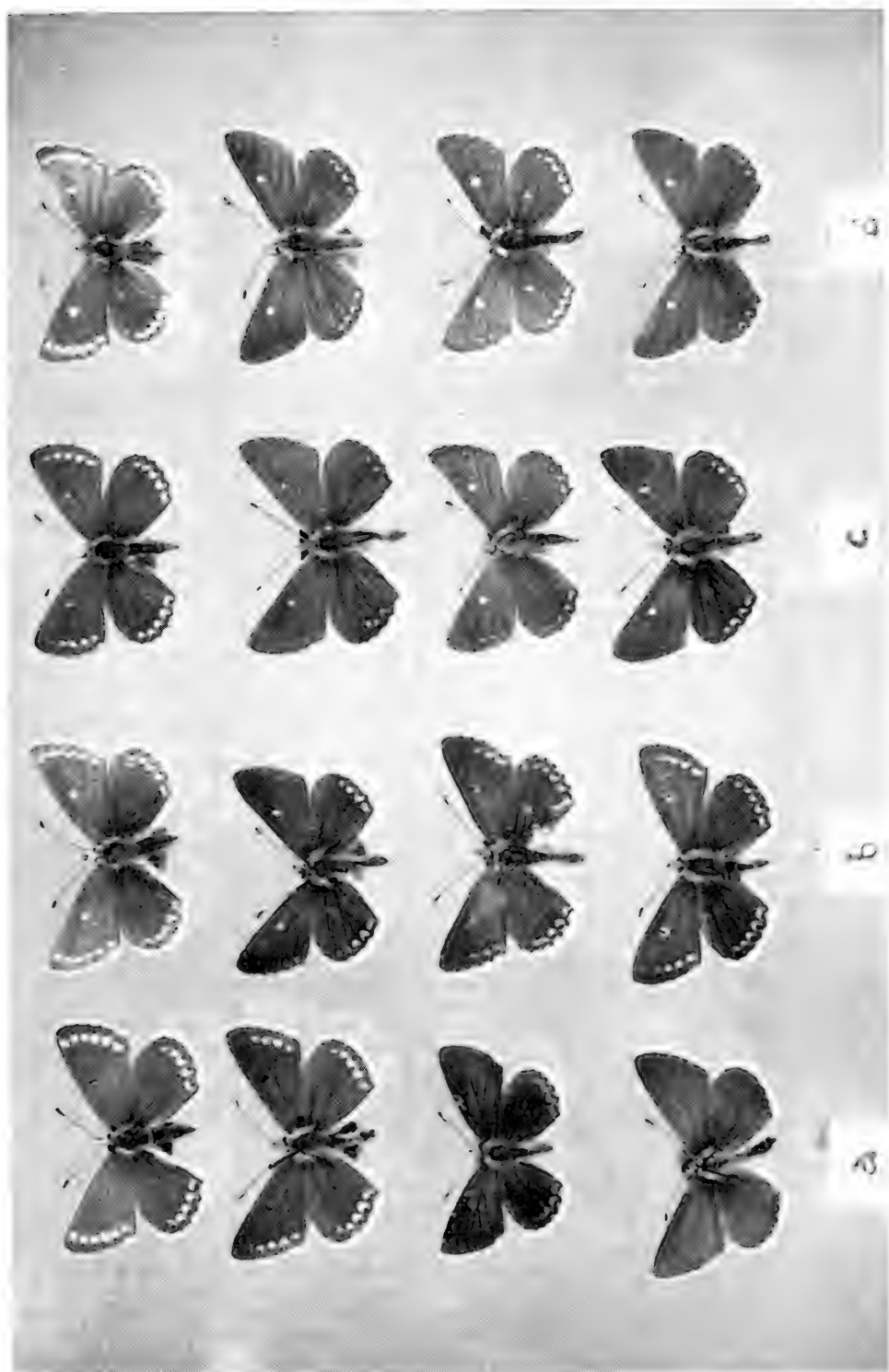
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EXPLANATION OF PLATE

A	B
<i>A. agestis agestis</i>	<i>A. agestis albiannulata</i> ♀
1. Blackhall ♀	1. Sherburn, Durham ♂
2. Mickleham, Surrey ♂	2. Blackhall ♂
3. Royston, Herts. (bred) ♂	3. Shadforth, Durham ( <i>quadr.-alb</i> )
4. Witherslack ( <i>allous</i> )	♂
	4. Winchester (bred) ♂
	Nos. 1, 2 and 4 are also var. <i>garretti</i>
C	D
<i>A. agestis artaxerxes</i>	<i>A. a. artaxerxes</i>
1. E. Durham Coast ♀	1. Blair Athol ♀
2. " ♂	2. Hawick ♂
3. " ♀	3. Selkirk ( <i>quadripuncta</i> ) ♂
4. " ♂	4. Selkirk ♂

---

There is one notable exception to the absence in Britain of records of *artaxerxes* outside the Durham coast. The genuine "White Spot" was taken by Dr. R. G. Abercrombie in July 1934 in Dovedale. This startling find was recorded in *The Naturalist* shortly after it occurred but was not fully described by Dr. Abercrombie until 1950 when it appeared as a single page account in *The Entomologist* (83: 128). In that account Dr. Abercrombie also records that "the two principal varieties of the species may occasionally be met within the limestone dales" of the Peak District and he goes on to describe the flora of the Dovedale gorge in which he took the *artaxerxes*. He quite rightly wonders whether Dovedale has provided a recess in which the northern race had been isolated. It is a pity that only an odd specimen was seen. Nevertheless this account may be of supreme importance in any new look at the problems of *agestis* migrations, their probable dates and their areas of settlement. One feels that this specimen of *artaxerxes* cannot easily be dismissed as an aberrant. There have been previous records of *artaxerxes* taken in Britain outside of the Durham coast, several of which are noted by Wailes in his *Catalogue*, but there appears to be an element of doubt in each of them. Further-



*Photograph by*

*Sinclair Bruce, Sunderland*

ARICIA AGESTIS SCHIFF. AND ITS FORMS.



more, a type of close-ringed *albiannulata* has often been mistaken by a casual observer as *artaxerxes*. A much closer investigation of the Dovedale gorge should be undertaken.

A modification and extension of Heslop Harrison's theory of the evolution of the *agestis* was made in 1945 by E. B. Ford in his *Butterflies*. Dealing with the races and sub-species of the British butterflies, Ford reaffirms Heslop Harrison's theory that the two sub-species of *A. agestis*, *A. agestis agestis* and *A. agestis artaxerxes* must have evolved in geographical isolation and have come into contact and produced a hybrid population along the belt where they met. Ford's thesis is necessarily very generalised for he surveys the whole field of our native butterfly evolution. One feels that a more detailed picture of the isolation, the mingling and the spread of portions of the *agestis* races, during the gradual advance and slow recession of the several Pleistocene glaciations, would have been possible. Such a picture, however, would have been out of proportion in this interesting book.

One must question one or two references by Ford to the present distribution of the insect and its forms. "*Artaxerxes* and the forms approaching it become progressively less common southwards through Northumberland and westwards from Durham to Furness, where they are very rare", and "the North-western race is the farthest removed from the Scotch, and the least like it", are surely either over-generalized or misleading statements.

Ford speaks of extremely rare forms suggesting *artaxerxes* which occur in Southern England as something which can well be expected. These are the *albiannulata* forms, and he illustrates one taken in the Isle of Wight.\* Ford sees in such forms a distant relationship with *artaxerxes*. A lay reading of this theory would assume that the dominance of the *artaxerxes* strain—Wright's "artaxegestid character"—diminished as we go from the Border southward. That apart from the area of overlap, the true white discoidal can never be produced by the interbreeding of the hybrids, though, with decreasing intensity, the other white scale facies may appear throughout the rest of Britain. There is in this an apparent departure from Heslop Harrison's contention that the *abiannulata* forms outside of the Durham coast represent merely a *Lycaenid* character akin to the *albocincta* of *L. coridon*.

Are these two theories of the evolution of our native *agestis* races so much at variance? A more thoughtful reading of both might well show that while we may never be able to specify where and for how long the changes in the available habitats of the Brown Argus have isolated and freed for migration portions of the two races, we can make reasonable conclusions as to the extent of such migrations and the measure of the overlapping and interbreeding which took place. The facies of the insect today may look alike from Sherburn Hill to Broughton Down, but there indeed the likeness may end. One may well ask, how many sub-species of our Brown Argus are there?

As if to make sure that its racial history will not be revealed, *A. agestis* is one of the most difficult insects to rear under controlled con-

\*Among the *albiannulata* illustrated on the accompanying photo 4B is a remarkable bred specimen from a Winchester ♀, and has the white scaling of var. *garretti* equal to many specimens from the North of England.

ditions. Over-wintering of the larvae is a very uncertain business, and the pairing of northern and southern insects, if they will pair, is made well nigh impossible by their univoltine and bivoltine character. Cytological investigation may some day produce information which will strengthen the contention of the theorists and provide the background that breeding and detailed examination of the morphology of the insect have not yet given us.

There is nevertheless a great need for more records of the habitats and emergence dates of *agestis* throughout Britain and particularly in the Midlands. The collation of dates for the areas of the univoltine and bivoltine emergences would be important. A survey of the Dove-dale gorge and indeed other possible areas of isolation would be valuable work. One feels that the N.W. of Ireland should still harbour a colony of *artaxerxes*. So far, the hybrid *agestis* has not been found in Northumberland since Selby recorded a few specimens from Bambergh about 1830. One wonders how far south into Yorkshire the univoltine *agestis* is found; it was last recorded as "*salmacis*" in Richmond one hundred years ago, while at Bishopthorpe near York it was described as "plentiful" in 1956.

Any account of the variations of *agestis* is irrelevant in an article on the races of the insect. Nevertheless it was tempting to include in the accompanying plate a few insects showing how the obsolescence of the upperside lunules is a recurrent feature in specimens taken from all parts of Great Britain. One might well ask whether it is possible that this "allous" character indicates an admixture and interbreeding of the upland races of Western Europe with our native stock.

Apart from the references in the text, I am indebted to Mr. Frank Hewson for records of Yorkshire *agestis* and to Mr. F. V. L. Jarvis for specimens of southern English *agestis* (A 3 and B 4) illustrated.

## Microlepidoptera in Lancashire and Cheshire, 1955-57

By H. N. MICHAELIS

A few records of species apparently new to the two counties have been received together with information relating to species missing from the records for several years. In addition, some considered local or scarce appear to be more widespread than was previously shown by the existing records. In the narrative, the following abbreviations are used: C for Cheshire and L for Lancashire.

*Dioryctria abietella* (Schiff.).—Always local in central and west Cheshire, a specimen was taken in the eastern part of the county at Wilmslow in August 1955 by G. S. Kloet.

*Phalonia implicitana* (Wocke).—New to the county, a specimen was found by N. L. Birkett on 2.viii.55 at Walney Island (L.). See *Ent. Rec.*, 67: 331.

*Eucosma foenella* (Linn.).—Previous records are from coastal areas where it is not common. Two were taken at Didsbury, Manchester, in July 1957 where the foodplant, *Artemisia vulgaris*, is plentiful.

*Eucosma pupillana* (Hübner).—One taken at Bebington (C.) on



23.vii.55 at m.v.l. by R. Prichard. This species has not been recorded since 1887 when C. S. Gregson took specimens on Wirral (C.).

*Eucosma ophthalmicana* (Hübner).—Though found in a few localities in Cheshire, it has not been recorded for Lancashire since before 1890. Two were beaten from *Populus alba* at Formby (L.) in September, 1957. On the same trees, three green larvae were found in the folded edges of leaves; these produced *Peronea hastiana* (L.) in October.

*Endothenia oblongana* (Haw.).—A specimen taken by C. M. Jones at Hoylake (C.) is the only record available from the county since the Ellis List 1890. It has appeared in the Formby (L.) area occasionally.

*Endothenia ericetana* (Westw.).—There are a few records from the coast and from the Grange over Sands district of Lancashire and no previous records exist from Cheshire. One was found at Frandley, near Northwich (C.) by A. W. Boyd in 1956 and two came to m.v.l. at Didsbury, Manchester, in July 1957. The larva feeds on the rootstock of *Stachys arvensis*, a plant fairly common in both counties.

*Argyroploce micana* (Fröl.).—Old records exist for Lancashire but none can be found for Cheshire. In 1955 R. G. Warren took two on a moss near Congleton (C.). An earlier specimen from Delamere (C.) in July 1938, taken by the writer, was not identified until recently.

*Argyroploce arcuella* (Clerck.).—Recorded previously only from Windermere (L.) and Hooton (C.), J. Heath found the moth to be common in a wood near Holker in the Grange over Sands (L.) district in 1957.

*Ernarmonia tenebrosana* (Dup.) (*roseticolana* Zell.).—Found prior to 1890 in Cheshire, C. M. Jones took a few at Hoylake (C.) on 30.vi.55.

*Metzneria lapella* (Linn.).—A few moths "smoked" from plants of *Arctium lappa* at Silverdale (L.) in 1955 were the first record for Lancashire prior to 1890. A dozen were bred from the seeds of the foodplant in 1957.

*Aristotelia pictella* (Zell.).—The first record for Cheshire is from R. Prichard who took a specimen at Hoylake on 21.vii.56.

*Phthorimaea tricolorella* (Haw.).—A few from Ness (C.) bred from spun shoots of *Stellaria holostea* by the late B. B. Snell in 1954 is the only record available since the Ellis List 1890.

*Mompha ochraceella* (Curt.).—Considered local and uncommon until 1957, when a survey of established colonies of *Epilobium hirsutum* proved that the moth is plentiful in the Manchester, Oldham, Silverdale and Formby (all L.) districts and in many parts of east Cheshire. The larva feeds primarily in the rootstock, then mines through the stem and the leaf petiole to pupate in a pale yellow shuttle-shaped cocoon on the underside of a leaf, usually close to the stem. Occasionally two or three mines and cocoons may be found on a single plant stem but the normal occurrence is one larva to one stem. Stunted plants examined in mid-May are the most profitable. The imago emerges in June and July and is seldom seen even in places where the moth is known to be plentiful.

*Depressaria ultimella* Staint.—Two were taken on wet ground at Delamere (C.) in 1953 and 1956 respectively. So far the food-plant, *Oenanthe phellandrium*, has not been observed in the area. The only previous record was one taken by Wm. Mansbridge in 1921 at Storeton (C.).

*Elachista atricomella* Staint.—The revised Ellis List 1940 states "there are no recent records". So far the moth has been taken in small numbers at Didsbury, Oldham and Reddish (L.) and at Wilmslow, Cheadle and Dunham Park, Altrincham (C.) between 1953/57.

*Elachista kilmunella* Staint.—As the food of this common moorland moth is unknown, it is worth recording that I found two pupae attached to leaves of *Eriophorum* on a moor near Macclesfield (C.) in late June 1957. The moth is on the wing from early June to late August and may have two broods during the summer.

*Cedestis gysellinella* (Dup.).—Though found in Staffordshire, it was not recorded from Cheshire until H. L. Burrows took moths at Delamere in 1954.

*Monopis weaverella* (Scott).—Not previously recorded for either county, the moth was locally common in the rides of Delamere Forest (C.) in June 1956. Possibly it has been overlooked in the past owing to a resemblance to the abundant *M. rusticella* (Clerck).

*Ypsolophus sylvellus* (L.).—By kind permission of the owner I collected in Dunham Park, Altrincham (C.) in 1956/57. In the mid-nineteenth century this was a haunt of Joseph Chappell (of *Leucodonta bicoloria* at Burnt Wood fame) and I made a point of attempting to find the better species from this fine oak parkland which are recorded under his name in the Ellis List. So far I have found *Drymonia ruficornis* (Hufn.), *Apocheima hispidaria* (Hübner) and *Argyresthia glaucinella* Zell. (the last in plenty), but *Boarmia roboraria* is still missing. On one of the few fine days in September 1957, I disturbed two *Y. sylvellus* from oak branches and these appear to be the first records since Chappell found it about there about one hundred years ago.

*Ypsolophus scabrellus* (L.).—Though records show this to be a local and uncommon moth, G. S. Kloet has taken at least a score at m.v.l. at Wilmslow during 1956/57.

*Nemophora minimellus* (Zell.).—Not previously recorded for Cheshire, H. L. Burrows found a few specimens on a moss in the southern part of the county.

*Stigmella decentella* (H.-S.).—First recorded for Cheshire by A. W. Boyd about ten years ago, this species has appeared in small numbers in several parts of Cheshire and south Lancashire. On 17.vi.1957 our three sycamore 'micros' viz., *Pammene regiana* (Zell.), *Lithocolletis geniculella* Rag., and *S. decentella*, were present on a sheet at m.v.l. in my garden at Didsbury.

## Notes on Rearing *Euplagia quadripunctaria* Poda

By A. T. POSTANS

In the late summer of 1955 I had the good fortune to obtain some 200 eggs of the Jersey tiger moth from captured wild females. From these eggs there emerged in due course 195 healthy larvae. These were divided up into four lots and placed in 1½" glass topped metal boxes and supplied with small pieces of a variety of foodplants, including dandelion and stinging nettle. The larvae seemed in no hurry to start feeding, however, and spent the first two days resting quietly on the under side of the glass lids of their boxes.

When they did eventually make a start the stinging nettle was pre-

ferred to the exclusion of everything else, even dandelion being almost completely ignored. Progress was normal and without incident for the following two or three weeks. I paid particular attention to cleanliness and the supply of fresh food and removal of the old every other day. This I have found to be essential for the successful rearing of all larvae.

By the third week of September most of the larvae had moulted three times and were a little over a quarter of an inch in length, and I decided it was time to move them into more ample quarters, so they were transferred into four  $3\frac{1}{4}$ " glass topped tins. A couple of weeks later I divided them up again into six tins, which for their size was not crowding them too much.

Losses up to now had been negligible. One or two weaklings had died off, but apart from these the rest of the larvae were healthy and making excellent progress and I was well pleased with them. The weather in October was exceedingly mild and the larvae continued to feed well and maintain progress; but about this time I noticed that wet frass was being produced—a bad sign—and something had to be done to correct it. So I decided to try a change of foodplant, and in place of the nettle I gave old, tough, weather-beaten leaves of *Salix caprea*, and to my relief the larvae took to this in preference to the nettle and the trouble was corrected. I continued to give willow leaves as long as any remained on the bushes—well into November. By this time most of the larvae were beginning to slow down with their feeding and a few seemed to have ceased altogether.

At this stage I decided to put them all into a breeding-cage for the rest of the winter, and for foodplant I reverted again to stinging nettle, which is always obtainable even in the severest weather and keeps well for several days if plugged into small bottles of water. Whenever possible, however, it was renewed at least twice a week so as to ensure that the larvae always had really fresh food available at any time they wished to feed, and the cage was kept on a shelf in the bathroom, which was always warmed by the hot water tank.

Under these conditions the larvae continued to thrive, the only noticeable slowing down in feeding occurring when there was frost out of doors. Over Christmas and all through January the weather continued, for the most part, extremely mild, and by the end of the month the larvae were so far advanced that I had to find fresh foodplant for them every other day. And then, just when things were going so well, the weather took a turn for the worse, and February became a full month of icy winds and snow-covered ground. Even in the warm bathroom the temperature dropped by several degrees, and this caused some of the larvae to suspend feeding. However, most of them carried on, although I had some difficulty, and a certain amount of discomfort, in keeping up the supply of foodplant owing to the wintry conditions out of doors.

In early March the wind suddenly switched to south-west and the weather became warm and springlike, and all the larvae were soon on the move again and feeding well. Progress was maintained and by the middle of April most of them had moulted for the last time.

It was noticed at this stage that the nettle upon which they had subsisted so well during the long winter months no longer seemed to

satisfy them, and when I gave them dandelion they accepted this at once and refused the nettle altogether.

A rough count revealed that of the 195 larvae with which I had originally started well over 160 still survived in good healthy condition. I now had them housed in a roomy cage measuring 3 ft. in length and 1 ft. 6 in. in height on a shelf over the kitchen range, which was kept working most of the time for household needs, and here they were supplied with the warm temperature so essential to their well-being. Much as they liked the warmth, however, I found that they had no fancy for basking in the sunshine as do the larvae of *Callimorpha dominula* and other of the Arctiidae, and in the later stages of their growth especially they even showed an aversion from strong light. Throughout the daylight hours they seemed quite content to rest motionless, stretched at full length in clusters on the sides and back of the cage; but at the approach of dusk they became intensely active and fed ravenously all through the night.

At the beginning of May a few of the larvae began to show unmistakable signs of being full fed, and I made preparations accordingly. First I put on the bottom of the cage about an inch of sand and then a good layer of moss loosely arranged, topping up with tufts of turf with the soil still adhering (I found later that larvae had spun up in this soil and not in the moss). A few crowns of dandelion—renewed as necessary—served as food for the larvae until all had finished feeding. They became very restless at this period and roamed about ceaselessly for quite two days before finally spinning up.

About a week after the last larva had gone down I removed most of the old foodplant that had accumulated, taking particular care not to disturb any of the material below turf level which (I hoped) contained the precious pupae that would reward all my efforts. From then onwards the contents of the cage were sprayed regularly every other day with tepid water and never allowed to become dry.

About three weeks later the first moth appeared. Happening to glance at the cage about 10.30 a.m. one morning, there it was, newly emerged, on the back of the cage drying its wings. It was a beauty, a full-sized female with canary yellow hindwings (var. *lutescens* Staud.); this was a good beginning and exceeded my expectations, but even better was to follow. From then on the moths continued to emerge daily, a few at a time, over a period of several weeks, which was convenient as it enabled me to secure them in good condition. This is by no means an easy thing to do, for *quadripunctaria* is one of the most restless species I have ever bred, and I found it prudent never to leave more than three or four newly emerged specimens in the cage together at the same time. Immediately one leaves its cocoon it starts to scramble all round the cage and over every obstacle that comes in its way for quite ten minutes before it finally settles down to expand its wings, and if another specimen happens to come along and disturb it, the chances are that either one or both will get damaged. If all goes well, the wings are dry in about two hours, and if undisturbed the moth will sometimes remain motionless for quite a time, but the slightest sound or sudden movement will alarm it and start it flying about wildly.

On one occasion when I happened to be away from home for the day no less than twelve specimens emerged, and when I returned in the

evening I found them all jostling about in one corner of the cage in an effort to escape and my wife in a state of some agitation, being quite unable to cope with the situation. I took a quick look at the door and the window to make sure they were shut and then opened the door of the cage, whereupon the moths streaked out towards the light and the window, where I boxed them one by one. Luckily only three were badly damaged, all the rest being quite good specimens and unmarked.

A final count revealed that no less than 164 perfect specimens were bred, of which only 26 were of the red type form, 86 of the yellow *lutescens* form, and 52 of the orange form, in varying degrees of intensity. Only three were crippled on emergence and 12 were spoiled by unavoidable accident. Altogether a very satisfactory achievement from which I derived much interesting study and a great deal of pleasure, and finally a fine series of a desirable and beautiful insect.

13 Stanfield Road, Winton,  
Bournemouth, Hants., November 12, 1957.

## The Alps in 1957

By Lt. Col. W. A. C. CARTER, R.A.

(Continued from page 65)

NOTE.—In the following account the nomenclature is based on that used in *Die Schmetterlinge Mitteleuropas* by Forster and Wohlfart, Band II, 1955. For brevity, this book is referred to as 'F. & W.'

On the way home we stopped in San Valentino to drink the local wine—light but refreshing stuff and a modest luxury at 240 liri per litre (about 2s 6d). That evening the village celebrated the Feast of Corpus Christi. After much singing and dancing in the market square, bonfires were lit on the tops of the surrounding hills and it was a stirring sight to see them twinkling like stars all down the valley.

On July 1st, in rather uncertain weather, we walked up the valley leading to the Offenpass. It was very hot and despite a continuous rumble of thunder over the Pass we had what was probably our best day. Walking along the banks of the Rammbach (3,250 ft.) the first find was *Meleageria daphnis* Schff.—several others turned up later. *Plebeius argus alpina* Courv. was fairly common—small and similar to those that we had found previously at Reschen. Amongst them were two examples of *Lycaeides idas* L.; they were males and probably belong to *ssp. argulus* Frey, but their poor condition makes accurate identification rather uncertain. *L. coridon* was abundant but only males were seen; with them were a few *icarus* and *bellargus* and there were numbers of large and brilliantly fresh *Agapetes galathea* L.

The river bed was wide and strewn with boulders bleached white by the sun; the glare was intense and it was hot work scrambling amongst the rocks. On an island there was a small colony of *Heodes alciphron gordius* Sulz.—only males but in splendid condition. One *H. virgaureae* L. was also taken. Flying amongst the stones were large and brilliantly coloured *Hipparchia semele* L., *C. pamphilus*, *Satyrus ferula* in mint condition and some deplorably ragged *Dira petropolitana* F. *Aphantopus hyperantus* L. was swarming and there was an abundance of what looked like *M. jurtina*. One of these was taken and later proved to be *Hyponephele lycaon* Rott. Amongst the scrub were fresh

*Coenonympha arcania* L. and numbers of *Leptidea sinapis* L. Amongst the latter there seemed to be an overlap between the spring and summer broods; one very fresh male had the heavy dark marks on the forewings and the almost plain undersides characteristic of the summer brood.

*Parnassius apollo* L. were common but they were getting very worn. Amongst them I saw a curious thing. A female was walking over the grass still in copula with what was left of a male. Her luckless husband must have been dead for several days and there was hardly anything of him left. He had lost both his antennae; both the wings were missing from one side and there was precious little on the other; his body, still clasping that of the female, was completely desiccated.

*Aporia crataegi* L. was abundant and I found several batches of eggs laid on stunted thorn-bushes. The first *Gonepteryx rhamni* L. were just appearing.

The Erebias were disappointing. *E. alberganus* was common enough but the only other species found was *E. triarius* Fruhst.—a single rather worn female. The fritillaries were, for the first time, well in evidence. Several *Mesoacidalia charlotta* Haw. (*aglaia* L.) and *Fabriciana adippe* Rott. were seen. There were also a few *Issoria lathonia* L.—unfortunately not in very good condition. Amongst the Melitaeas were *diamina* Lang, very fresh *phoebe* Schff., *cinxia* L. and *parthenie* Bkh.

Other Blues taken were a single male *Lysandra argester* Berg. and several *L. icarius* Esp. The illustration of the latter on Taf 26 of *F & W* is, I think, rather misleading. In all the examples I have seen the markings on the underside are much less bold and the orange chevrons are almost non-existent. A rather better representation is that of *Meleageria daphnis* Schff. at Fig. 25 on Taf 27.

The Skippers were very plentiful on patches of moist and rather noisome mud. As always, they were very hard to identify but I was able to spot *Erynnis tages* L., *Adopaea sylvester* L., *Pyrgus carthami* Hbn. and *Ochlodes venata* B. & G.

On the following day we left Mals intending to spend the rest of our leave in Switzerland. We got into the Inn Valley over a wicked pass from Nauders to Martina and made our way to Pontresina. It was congested with tourists in every degree of *déshabille*; accommodation was hard to come by and the prices so far beyond our means that we rather hastily retraced our steps. Somewhere between Schulz and Ardez, at a height of about 4,500 ft., we stopped at a steep bank beside the road. The place was crowded with butterflies but, maddened by the horse-flies and the intense heat, we stayed for only half-an-hour. During that time we took *Lysandra argester* Berg., *L. icarius* Esp. and *Lycaeides idas* ssp. *valesaica* Obth. *Maculinea arion* L. and *Cyaniris semiargus* Rott. were as common as ever and we saw *aglaia* and *Melitaea phoebe* Schff.

After spending the night in the little village of S-Chanf, we drove back into Austria with no very clear idea of where we were making for. On the way, we stopped at the same place near Ardez and, although scarcely 10 o'clock, it was already unbearably hot. In addition to the insects seen the day before we found *Agrodiaetus damon* Schff., *Heodes virgaureae* L. (rather scarce) and *P. hippothoe* L.

*Melitaea diamina* Lang was very worn but the *M. phoebe* were in perfect condition. There was a great many *Colias crocea*, *hyale*, *australis* and *phicomone* but they were mostly, except the last, going over. I took a female *Lysandra bellargus* f. *ceronus* but it was hopelessly worn.

We had an uncomfortable drive of about twenty miles in the cloud of dust behind a post-bus which never seemed to stop for post, then stopped for lunch south of Landek and suddenly decided to go back to Lech, where we had been last year. Having now made up our minds we could not wait to get there; we took the Arlberg Pass as if it was not there and did the whole fifty miles in little over an hour.

July 4th was another scorching day and even walking was something of an effort. We went up to the Gstüt Alp (6,200 ft.) and were on the ground by 0930 hrs. It was difficult to say how things compared with 1956. There was a fair amount of snow but generally less than last year; wild flowers seemed to be brighter and more plentiful and there was one bank which was a blaze of bright pink dwarf *Primula*—*P. farinosa* L.—and the true gentian of the most vivid blue. We found *Lonicera caerulea* L., a tiny shrub which we had not seen the previous year and, by a large patch of melting snow, we found the Penny-cress, *Thlaspi rotundiflorum* Gaud.

The butterflies were rather patchy. On the way up we saw a very aged *Euphydryas aurinia* Rott. In its localised haunts, *Agriades glandon* Prun. was plentiful and in good condition. *Coenonympha satyrion* Esp. were much in evidence but some were past their best. *Erebia pandrose* Bkh. was scarce and worn; *E. tyndarus* Esp. was also scarce but its excellent condition suggests that it was not yet fully out. *E. pharte* Hbn. was quite fresh and there were a number of *euryale* amongst the trees. These appear to belong to *ssp. isarica* Heyne. They differ from *adyte* Hbn. in that the spots on the upperside are larger and are without the white centres. On the underside, the females are strongly marked on the hindwings with a whitish median band and a grey basal area. The males are purplish brown with a pale median band which is quite distinct.

The fritillaries were disappointing. There were some rather worn *euphrosyne*, *Boloria napaea* Hffmg. and *B. pales* Schff.—the latter in both sexes—but they were few and far between. *Colias phicomone* Esp. was common and there appeared to be considerable variation in the degree of black scaling. Amongst the Skippers, *Pyrgus alveus* Hbn. was common but the most interesting find was a very fresh male *Carterocephalus palaemon* Pall. A diligent search failed to turn up any more.

It was very hot again the next day when we went to the high meadows above Zürs. To our great disappointment we found most of the wild flowers over; it was something of a surprise, too, because the Alpine Rose was barely out and we were three weeks earlier than in 1956. All the *Pulsatilla* were over except for an odd and very passé example above 7,400 ft. I made straight for the foot of the Rufs Spitze and the rather exhausting climb was well worth the effort. From 7,500 ft. the view of the surrounding mountains was stupendous. There was a lot of snow lying about and the only interesting flower was the beautiful purple pansy, *Viola calcarata* L. The most striking thing was the absolute silence broken only by the chirp of birds among the



cliffs and the rather owl-like cries of marmots as they scuttled for their burrows.

I found *Euphydryas cynthia* Hbn. in its very restricted colony at the foot of the cliffs. They were in fair condition but I saw no females. *Boloria alethea* Hemming was common and with them were a few *B. pales* Schff. One of the *alethea* was so fresh that it still had the 'mask' of the pupa-case sticking to its head. An unexpected catch was *Oeneis aello* Hbn. at the extreme head of a rocky gully. They were very worn. Another find was a small colony of *glandon* on the edge of the screes—a rather unexpected habitat.

The *Erebias* were interesting. There were none at all in the main valley, but at the foot of the Rufispitze I found *pandrose* Bkh. in some numbers. In spite of their slow, floppy flight, they are surprisingly difficult to catch; at the critical moment they manage to make a quick side-slip and then they are gone for good. I found one male *pluto* Prun. and a small colony of *gorge* Hbn. Of *tyndarus* I saw only one very pale female.

At the edge of the screes there were numbers of *Pyrgus onopordi* Rbr.—in both sexes and excellent condition.

On July 6th I went to Dalaas. The heat was so intense that it verged on extreme discomfort. Unfortunately the butterflies scarcely justified the very exhausting climb. They themselves seemed thoroughly listless but the effort required to make a stroke with the net was such that they had little difficulty in avoiding capture!

Just above the station there were a few *coridon*, and flying round a privet bush were several *Strymon w-album* Knoch. A little further on a very fresh male *Erebia ligea* L. was taken. Much of the hay had been cut but in places where it was still standing there were a lot of Blues. It was far too hot and steep to stop and examine them. My last year's pitch was a depressing sight; the whole slope seemed much less lush and more burnt up and there were hardly any wild flowers except *Aquilegia* and, on the edge of a precipitous ravine, a wonderful purplish-brown lily so far unidentified.

The commonest butterfly was *C. iphis* Schff.—in all conditions from very fresh to hopelessly worn. With them were *pamphilus* which I did not find here last year. Males of *Dira maera* were out in some numbers.

*Melitaea cinxia* L. was in the last stages of decrepitude but *diamina* Lang was fair. *Britomartis* Assm. was fresh and I came across two very small *Melitaeas* which I cannot, at present, identify. They are very like undersized *britomartis* but their wasted condition suggests that they had been on the wing for much longer. They appear to be similar to an insect caught at Reschen on 30th June. There were some very fresh *aglaia*, one *Clossiana titania* Hbn. and one bedraggled *C. euphrosyne* L.

The Blues were scarce. *Minimus* was there with some battered *semiargus* and worn *argester*. A few *coridon* males were flying but there was no sign of either *icarus* or *bellargus*. I took one fresh *Maculinea arion* L. which turned out to be a good example of ab. *basijuncta*.

A few *Erebia ligea* were to be seen in the shady places; with them were *E. euryale isarica* Heyne and one rather worn *oeme* Hbn. *E. aethiops* Esp. was just appearing.



That evening a violent thunder-storm came up from the south and broke over the Klosterthal. It by-passed Lech but, for about an hour, there was some very spectacular lightning.

The following morning we walked up the Lech valley through Zug. The previous night's storm had done little to cool the weather and it was still very hot. There was not much to be seen. *Anthocharis cardamines* L. was still flying and there were some *Colias phicomone* Esp. in fine condition. Down by the river, *Erebia melampus* Fuessl. was just out and the meadows were full of the first males of *E. epiphron* Knoch. There were also a few *E. pharte* Hbn.

Amongst the scrub by the edge of the river were *Aricia agestis* Schff., *Lysandra coridon* Poda and *Agriades glandon* Prun.

(To be continued)

## An Entomologist in Jugoslavia

By RALPH L. COE

(continued from page 76)

After leaving Resen the coach climbed again into the mountains. Then we began the descent to the wide plain bordering the great lake of Ochrid, which suddenly came into view in all its smooth beauty. Across the expanse of water rose the dark and rugged mountains of Albania. Soon we halted in the picturesque little town of Ochrid, which stands on a hill beside the lake. There I got out, and with much waving of hands from the occupants the coach set off again to take the girls to an outlying hotel further along the shore.

I asked the way to the Hydrobiological Institute, where it had been arranged for me to stay for a few days. After a couple of miles' walk along a very dusty and rough road I arrived at my destination, tired and sweating with the mid-day heat. Although I had been told in Zagreb that the director, Dr. Shapkarov, spoke English, to my dismay this was not so. However, his foreman knew a little of our language, and came to the rescue. I followed my hosts into a large building and up several flights of stone stairs, and was shown into the small, plainly furnished students' bed-sitting room. Although there were three beds, I had the room to myself during my short stay.

After unpacking and a much needed wash, I went down and was shown over the premises by the foreman. The work of the institute centres round the breeding and preservation of the salmon trout for which the lake of Ochrid is famous. There can be few hatcheries in Europe to compare with it. Laid out in striking symmetry alongside the research buildings are row after row of concrete tanks, some like small reservoirs, in which swim giant veterans of trout, others only a few feet long, and teeming with the tiny fry.

I was taken over the extensive hatchery house, where troughs containing the ova and alevins (or baby trout) are supplied with fresh water by an intricate system of distributing basins, from which the water passes through filters into the troughs. Some of the latter contained literally tens of thousands of the alevins, a fascinating and almost incredible sight.

Stretching from the institute to the lake is a wide straight canal,

and in the late afternoon I took my net to its nearest point to try my luck. Chironomidae were plentiful, as well as other aquatic breeding Diptera, and by dusk my killing bottles were well filled. I went back to my room to examine and prepare my captures. On the way I met the foreman, and asked him what arrangements had been made about my meals. To my surprise he said that I should have to go to the town for these, as the institute had only enough food for its staff. Time being precious, I did not relish the prospect of the long walk involved. I decided to make-do for supper that evening with a chunk of cake that I had bought in Resen and a glass of water. Rummaging in my case, I found that the cake was baked almost brick-hard with the heat of the sun, but by dipping pieces in the water I made a meal of it.

My delicate captures were soon nicely spread out on a piece of white paper on the table. I had just started pinning them under my lens when out went the electric light. Striking a match, I made my way to the door and opened it. The corridor was in complete darkness. Picking my way carefully, I went down a flight of steps and on the next landing saw a glimmer of light coming from under a door. A woman appeared in answer to my knock. With some difficulty I made her understand that I wanted the light restored, but she shrugged her shoulders, as though to indicate, "You have had it, chum!" However, when I persisted she took me down to the ground floor and called the foreman out from his room. He too made a hopeless gesture, saying that the fuses were of an old German make and very difficult to repair. However, he would phone to an electrician who lived in the town.

Soon he came back to tell me that the man would be over in the morning. I explained that my specimens would be dry and worthless by then, and would he kindly let me have a candle. He went and fetched one and lighted it, but took it over to the antique fuse-box and started fiddling about. After ten minutes or so I began to get impatient and told him I could make-do with the candle, but, no, he would call another man to assist. Off he went, and I waited and waited, but nothing happened for quite half an hour. Then the two of them appeared, and more fiddling went on, with much gesticulation and argument. At long last they gave up the struggle, and the fuse-box was slammed shut. By then the candle was a guttering fragment, and another being handed to me I went back to my room. Feverishly pinning away, my eyes strained by the poor light, it was well past midnight when the last specimen was safely dealt with. As I undressed wearily, the electric light came on. I never knew why.

The next morning dawned fine and sunny, and I set off early for the town to get my breakfast. Taking a short cut by the canal, I soon reached the lake and went on along the shore. Fishing-nets were drying over arches of tree-branches driven into the shingle, and here and there women stood knee deep in the shallows washing linen. The Bellevue Hotel came in sight on the outskirts of the town, and in no time I was sitting outside, eating a hearty meal to the discordant blaring of a three-man band.

Hurrying back to the institute with a packet of salami and bread for my mid-day snack, I went upstairs to fetch my collecting gear. I was startled to find my room a hive of activity with women cleaning the windows, dusting and what-not. When I walked in they all stopped

work to stare at me. No doubt curiosity to see the Englishman at close quarters accounted for this excessive zeal for cleanliness. With some difficulty I extracted my equipment from under a pile of bedding, and left them to it.

I spent the day in sweeping along the canal, and again took plenty of Chironomidae, including a new species of *Pseudodiamesa*, not yet described. The west bank, alongside which ran the path to the lake, had little vegetation, but the opposite bank was rich with dwarf willows, long grasses and reeds. The irrigation system was a drawback, ditches several feet wide breaking the continuity of the bank at frequent intervals, compelling me to clutch my haversack tightly and make acrobatic leaps from time to time. That evening the electric light did not let me down, and my specimens were soon safely pinned and layered.

Then I hurried back to the Bellevue for my evening meal. While I was eating, a man came over and introduced himself as the new British Consul for Skoplje. He was spending a couple of days at Ochrid on his way to take up his appointment. We had a very interesting chat, and he invited me to call in at the Consulate on my way back to the north to let him know how I had got on in the extreme south for which I was making. I asked him why at intervals along the main roads in Ochrid the flags of Yugoslavia, the Soviet Union, and Burma were flying. He explained that the presidents of Macedonia, Burma and a high Soviet official were expected there in three days' time.

After he had left me I stayed on for a while, watching the dancers who capered between the tables to the uncertain tempo of the band. They were certainly having a wonderful time. When I glanced at my watch it was gone eleven, and I got up to return to my sleeping quarters. As I walked along the canal path hordes of marsh-frogs made mighty leaps into the dykes, and from the cloaking darkness came the tremendous volume of sound of their night chorus.

No lights were visible at the Institute when I arrived, and the entrance door was locked. My knocks being unanswered, I walked round the building to seek some sign of life, but all was silent. Then through a ground-floor window came the welcome sound of loud snoring. I tapped gently on the pane, but the snoring continued unabated. My tapping got harder and yet harder, but the sleeper still remained in the enveloping arms of Morpheus. Moving on again, I saw a dim light at an upstairs window and spent some time in throwing up gravel. Nothing happened, and as by then it was past twelve I decided that I had 'had it' and must make the best of a night in the open.

An uncomfortable chill was in the air, so I walked briskly back along the canal bank to get warm. Coming across a deep rowing boat by the shore of the lake I clambered into it and lay down. Sleep proving impossible on the hard and damp boards I soon got out again and continued walking for what seemed an interminable night. Dawn found me outside a small café in the town, impatiently waiting for the door to open. The proprietor looked at me curiously as on the dot I went in and ordered a 'kava' (coffee). What a delicious cup it was! An hour later I was tucking into a hearty breakfast at the Bellevue, and then made my way back to the Institute. As I entered, a woman standing in the passage smiled at me, and I bid her 'dobro jutro' (good morning).

Nobody mentioned my being locked out the night before, and I said nothing, such incidents being best taken as they come.

That day I collected again by the canal. Before long three police arrived, and asked me questions that I could not understand. At last one wrote down what I translated with my inseparable dictionary as, "When do you leave Ochrid?" "Četvrtak (Thursday)", I replied. Then they demanded to see my passport, so reluctantly packing up my gear I took them to my room and showed it to them. They seemed satisfied, and went away. In the afternoon, however, collecting was again interrupted by a young man in civilian clothes who asked me in English, "When was I leaving Ochrid?" "Was my wife with me in the country?" (shades of the psychiatrist on the Bitola train!). Once more I said that I was leaving on Thursday, adding that I was alone. He then advised me to leave on Wednesday. A light then dawned, for the V.I.P.s were coming on Thursday, and for security reasons unknown foreigners were best kept away.

In the evening Dr. Shapkarov came into my room and said "Autobus Prespa Sreda (Wednesday)?" His manner was pleasant, and I had no doubt that on police orders he had to see that I moved off before Thursday. As suitable collecting places at Ochrid had proved restricted I decided that one more day there would do. To his obvious relief I said that I would catch a bus to Prespa on Wednesday morning, and after admiring my specimens he went off smiling happily.

Next morning I climbed a hill slope and collected at about 500 feet above the lake. Below I could see the vast plain of intensively cultivated and irrigated land stretching into the distance, a monotonous sight from the dipterist's viewpoint. Many of the Tamarisk-like shrubs dotted about the hill-side had dense pouch-shaped whitish webs crowded with butterfly larvae. Resting on stones in the hot sunshine were several species of Bombyliidae, including the common *Exoprosopa jacchus* Fabricius and *Bombylius pumilus* Meigen, of both of which I soon collected a series. I also took a single male of an *Eumerus* closely resembling *strigatus* of the British fauna, but differing from that species in several respects, including the narrower frons, less swollen hind femora and tibiae, and shorter general pubescence. On returning home it proved to be new to science, and I have described it as *claripennis* (Coe, April 1957, *Proc. R. ent. Soc. Lond.*, (B) 26, pts. 3-4: 60-62).

After eating my mid-day snack, I decided to have a final sweep along the canal. An inquisitive school-boy came up to see what I was doing. He became intensely interested when I sat down to pin some Chironomidae, and called to some of his mates who were passing. Soon I had so many youthful heads bending over me that it was difficult to do my job properly. However, I completed it without damage, and was able to show more interest in the lads. When they produced their school books I was intrigued to see Serbo-Croat translations of *Oliver Twist*, *Othello*, *Hamlet* and *The Origin of Species*. It is evident that our literature is highly esteemed in Yugoslavia.

Nobody was about when I left the Institute at 6.45 the next morning, so I was unable to say good-bye to my hosts or to obtain help in carrying my cases. I took the short cut along the canal to the bus-stop in the town. The vehicle set off at 8 o'clock for Resen, where I had to

change buses. We covered the same route by which I had come to Ochrid. At Resen I was told that the so-called connection for Prespa would not arrive for several hours, so I set off on a more detailed exploration of the small town.

Wandering into a metal-worker's little shop, I watched him making delicate brooches from silver wire, over a tiny fire, which he kept glowing by means of an enormous bellows worked with his foot. Courteously fetching me a stool, he went out to fetch a one-time emigrant to America who kept a business nearby. Resen is noted for the number of its inhabitants who years ago emigrated to America, made their "fortune" and returned home. It is said that before the war three out of four of the menfolk had crossed the Atlantic in their time! The metal-worker returned with the other man, who was obviously delighted at this rare opportunity to meet an Englishman. After discussing a variety of topics, I asked him if business was good. Looking despondent, he explained that in Yugoslavia all businesses are now state property, and as a former owner he drew a monthly salary of about 8,000 dinars (less than £10), only just enough for the bare necessities of life.

Before I left his premises, the metal-worker opened an old wooden trunk and showed me the contents. It was crammed with all manner of metal objects of Macedonian origin. There were rings, medallions, necklets, coins, pieces of studded armour and what-not, all covered with the grime of years. I picked out an old scent-ring and a bracelet, which he placed in a pan with some liquid and held over the fire, tilting the container so that the liquid flowed over the objects. In no time they were bright and clean, and after some bargaining I bought them at a reasonable price.

After this interesting half-hour, I went off with the one-time emigrant to get some lunch. He took me into a small café, and we were soon enjoying ample helpings of "ramstek" (rump steak) with several kinds of vegetables. A man sitting nearby was called outside during his meal, and I noticed that he had left a wallet on the table. When I drew my companion's attention to this, he remarked that all Yugoslavs are honest, and the man's property could remain there safely all day. Exaggerated as this claim may seem to Westerners, from my own experience I have no reason to doubt its truth. After lunch we sat and chatted in an attractive little public garden by the bus-station, enclosed by railings and used as a children's playground. In the middle stood a finely sculptured statue of a young partisan of the last war.

At last my bus arrived, and after seeing that my cases were securely strapped to the roof, I got on and settled down for the journey. A diminutive peasant boy gravely offered me a sweet, but the flavour was so peculiar that I surreptitiously deposited it under the seat.

Soon the bus set off, and I waved farewell to my friend and a group of other locals who stood by to see me go. Leaving Resen behind, we passed through an agricultural area, where I was intrigued to see the truly primitive spectacle of a line of women moving slowly across a field, breaking down the large clods of earth with long-handled wooden mallets. Travelling south-west, before long the vast expanse of Lake Prespa came into view. To the south rose the mountains of Greece, while to the west the last of the Yugoslav hills sloped down to the lake. Behind them loomed the gaunt snow-capped peaks of Albania, mysteri-

ous outpost of Iron Curtain countries. I had reached the most lovely and exciting place on my journey, and the farthest south.

(To be continued)

54 Crossways, Addington, Surrey.

## Notes on Microlepidoptera

By H. C. HUGGINS, F.R.E.S.

*Acrobasis tumidana* Schiff. (*rubrotibiella* F. v. R.; *verrucella* Hübn.). I hope in the coming season that one of our ever-increasing number of students of the Pyralides will rediscover this moth in England. Although it has several times been recorded I do not think there are any authentic records except that of McLachlan and Howard Vaughan at Forest Hill, and of Farn at Darenth, the last being in 1886 and 1887. Of course it may be extinct, or have been only a temporary resident there, but I do not think this likely. I have investigated a number of records in the past thirty years and in every case the moth has proved to be a form of either *tumidella* Zinck. or (in one case) *consociella* Hübn. A good deal of confusion has been caused by Barrett's error in placing the captures of McLachlan and Howard Vaughan as *verrucella* and making *rubrotibiella* a separate insect, whereas of course they are the same. The error arose from the misidentification of a specimen of *Trachonistis cristella* Hübn. as *rubrotibiella*; as this square-winged rather brilliant insect is very distinct from *verrucella* = *tumidana*, Barrett naturally made two species of them. The sole British specimen of *cristella* was taken by Moncreaff on a saltmarsh near Portsmouth; doubts have been cast on its authenticity from the unlikely habitat; but I consider that like so many other insects it probably arrived on a south-west wind and if a fraud had been attempted a more likely locality would have been assigned. On Barrett's death it was bought by Eustace R. Bankes and it is now in his collection at the Brit. Mus. Judging by the only dates I know, those of Farn's insects (now in the Sheldon cabinet at the Brit. Mus.), *tumidana* appears on the wing several weeks after *tumidella*. Farn's were taken in mid-August. It is a rather more narrow-winged insect than *tumidella* and the purple is of a more violet, less red hue. The decisive feature, however, is the heavy raised scaling on the basal band.

*Hypercallia citrinalis* Scop. In view of the Editor's footnote to my remarks on this insect I think Chattenden may safely be eliminated from the list of its former localities. I think it almost certain that Ashby had made an error in recollection and that the locality named by Tutt was Cuxton. Cuxton was a favourite locality of Tutt's and most suitable for *citrinalis*. There are a large number of chalky pockets in the Downs in the Cuxton-Halling-Luddesdown triangle and so local an insect as *citrinalis*, which usually exists in small patches of ground, may possibly be there still. I have not been there for any length of time for 50 years and never worked it thoroughly, but it contained the best locality for *Plebejus argus* Linn. I ever found and prior to 1907 quails bred there every year.

*Pammene aurantiana* Staud. This moth seems to have been taken but not identified by quite a number of collectors, but so far as I can ascertain there are no records going back for more than three years. Between the two wars I examined a good many collections and had lots of "difficulties" sent me for an opinion and can say with confidence I never saw any. It appears to me that a swarm must have arrived, as with *parva* and *oblitella*, and have effected an at any rate temporary settlement.

## Notes on the Tineina

By S. WAKELY

MAY.—Several species occur during the month which are easiest to take in the perfect state. Two of these are *Telphusa scalella* Scop. and *T. luculella* Hb. They both rest in crevices on tree trunks and are almost certain to be found if looked for. About the middle of the month the flowers of *Stellaria holostea* should be examined for imagines of *Metriotes modestella* Dup. The moth can often be taken in numbers if one remembers to look for it on sunny days at the right date.

Last year larvae of *Isophrictis tanacetella* Schrank were taken after a lapse of half a century. To obtain this species the seedheads of *Tanacetum vulgare* should be collected towards the end of the month. If present the moths should emerge during July, and a search might reveal that this species is more widespread than present records would lead one to suppose.

A species I have never found myself is *Aristotelia atrella* Haw. It is said to be common, and the larvae mine stems of *Hypericum*, causing them to wilt and droop. At this time of the year plants grow very quickly and these drooping stems are soon hidden beneath the healthy shoots around them.

Both *Gelechia rhombella* Schiff. and *Recurvaria leucatella* Clerck are attached to apple trees, and by collecting spun shoots a nice series can be bred. The latter also occurs on hawthorn. Spun shoots of honeysuckle can be collected for larvae of *Epithectis mouffetella* (a striking dark larva with white marks on several segments near head). Larvae of *Ypsolophus xylostellus* L. and *Y. nemorellus* L. are even more common on the same plant. Several species of *Phthorimaea* can be taken this month in larval form, namely *Phthorimaea suaedella* Rich. on *Suaeda fruticosa*; *P. plantaginella* Stt. in root-crowns of *Plantago coronopus* causing plant to wither and go brown (common on downs at Swanage, Dorset); *P. obsoletella* F.R. in stems of *Atriplex littoralis* (Benfleet, Essex); *P. leucomelanella* Zell. in spun shoots of *Silene maritima* (Dungeness, Kent and Portland, Dorset); and *P. viscariella* Stt. in spun shoots of *Lychnis dioica* (has been taken in Kent, but more common northwards).

One seldom sees records of *Nothris verbascella* Hb. nowadays. It appears to be confined to Norfolk and the larvae should be searched for on *Verbascum*. The first larvae recorded for the country were found on the very local *Verbascum pulverulentum* (Hoary Mullein). The larvae of both *Stomopteryx vorticella* Scop. and *S. taeniolella* Zell. feed in spun terminal shoots of *Lotus corniculatus*. The latter is the more common species. The moths are velvety black with clear white narrow

central fascia. With *taeniolella* this fascia is distinct on the underside, whereas *vorticella* has only a white costal spot and no fascia visible on underside. Early in the month the terminal spun shoots of *Rhamnus cartharticus* can be picked for *Walshia rhamniella* Zell. The larvae are difficult to find, but if these shoots are kept under observation in a glass container some moths should be bred. It is a good plan to wrap the leaves or shoots in tissue paper as it often prevents mould caused by too much humidity. Also the larvae seem to like to spin up in paper. Tissue handkerchiefs are admirable for this purpose.

In gardens or orchards larvae of *Chrysoclista atra* can be found in withered shoots of apple trees. The central pith is eaten by the larva and the end of the shoot (often bearing flowers) is completely killed. Luckily for fruit farmers it never seems to be very common. *Mompha ochracella* Curt. is seldom seen as a perfect insect, but the cocoons are very easy to find on *Epilobium hirsutum*, in the roots of which the larvae feed. This willowherb grows in clumps and early in the month is the best time to examine the plants for cocoons. Using both hands, a long stem should be pulled up carefully so that it snaps at ground level. If the stem is examined at the break any brown larval mines will be at once visible if present. On finding a stem with mines the plant should be held so that the undersides of the leaves can be scanned quickly for the cocoons. These are formed by the larva mining into a leaf and spinning a tough cocoon in the mine. It is best to cut away most of the leaf round the cocoon to curtail humidity and mould in the material which has to be kept several weeks before the moths emerge. At the end of the month larvae of *Mompha conturbatella* Hb. can be found in spun shoots of *Epilobium angustifolium*. They feed chiefly on the pith of the stem and are very sluggish in comparison with the black active tortrix larva which so often occurs on the same plant. The larvae can be found for a very short period—usually in one week only about the end of the month. Larvae of the beautiful *Mompha schrankella* Hb. can sometimes be found mining leaves of *Epilobium montanum*. If empty mines are found, the nearby leaves should be examined for cocoons which are made under the turned-down edges.

*Hypercallia christiarnana* L. used to be taken freely 80 years ago on the downs near Kemsing, Kent, and then disappeared. It is of great interest that one was taken in the vicinity last year, while another was taken in 1954. The larva feeds in spun shoots of Milkwort (*Polygala vulgaris*) and according to Stainton it has a prettily speckled head and second segment. This enables it to be distinguished from a common tortrix often occurring on the same plant. The latter end of the month is the time to search for it.

At Benfleet, Essex, larvae of *Coleophora conspiculella* Zell. are sometimes common on *Centaurea nigra*. The case is shiny black in colour, long and pointed. The white 'windows' made by the larvae when feeding are often conspicuous, and the cases can be found on the undersides of the leaves or on nearby herbage. When beating flowering blackthorn many small larvae are often seen including one green in colour with red bands on each segment. These produce *Argyresthia albistria* Haw. Larvae of *Eidophasia messingiella* F.R. are often common on *Lepidium draba* in early May—particularly on the sea walls of the Thames Marshes in Essex and Kent. Towards the end of the month and later



many larvae very similar in appearance are to be found on the same plants, but they are only the common *Plutella maculipennis* Curt. For some reason the larvae of *Ypsolophus lucellus* F. prefer to feed on the leaves of low scrub oak, and where this is to be found they are sometimes locally common; while larvae of *Y. sequellus* Clerck can be beaten from the branches of maples. Larvae of *Acrolepia perlepidella* Stt. feed in mines in lower leaves of *Inula squarrosa*, but I have never succeeded in finding it myself. It occurs in Gloucester and Kent. On the Thames Marshes larvae of *Bucculatrix maritima* Stt. are very common feeding in long mines in leaves of *Aster tripolium* and the white cocoons can be found on any kind of herbage round the plants; while larvae of *B. cristatella* can be found on leaves of Yarrow, together with the white cocoons.

## Current Literature

COLLECTING, PRESERVING, AND STUDYING INSECTS. By Harold Oldroyd (Hutchinson, 25/-: 31.iii.1958). xv + 285 + xxvii.

To begin with, the author would seem to have avoided the pitfalls which have swallowed many others attempting such a volume. Previous manuals we have seen have been either "elementary" or "advanced", and the authors have either talked down to schoolboys or have feared to offend their readers by mentioning facts which should be (but are not) known by all.

The work is divided into three main sections each suitably subdivided; these are "Collecting insects", "Preserving and examining insects", and "Studying insects", and to these are added four useful appendices, viz. useful formulae, a glossary of terms used in entomology, a bibliography and a short list of useful addresses followed by a comprehensive index.

The first section starts with an all-embracing note on where to seek insects, which is fortunately not limited to the narrow confines of this country, although we would possibly be a little chary of seeking fresh rhinoceros dung, having in mind the tales of these beasts brought back from Africa. Chapter II, copiously illustrated, deals with catching and trapping, and shows a wide range of apparatus for the collection of all orders in the field. Chapter III deals similarly with breeding and breeding apparatus, while Chapter IV deals with all the aspects of killing specimens, both general and particular methods are discussed, and there is some sound advice on the ultimate disposal of old cyanide bottles.

The second part begins with Chapter V dealing very fully with the preparing and mounting of insects of all descriptions for permanent preservation, again well illustrated. Chapter VI concerns the examination of insects with enlightening diagrams illustrating the use of the microscope and the camera lucida, as well as listing and illustrating apparatus. Chapter VII covers all the aspects of photography of insects including set specimens, micro-photography, outdoor camera work, and cinematography, again with instructive diagrams.

Chapter VIII begins the third section, outlining the principles of zoological nomenclature and classification, and is a gentle introduction to the thorny field of nomenclature rules, while Chapter IX lists and

explains the orders of insects and the main families concerned, in a very lucid manner. Chapter X on how insects are identified gives good advice on the making and use of keys and how to adapt them to accommodate new species; anatomical parts of taxonomic importance are also discussed. Chapter XI is most enlightening, being concerned with the subject of further reading, while Chapter XII gives most instructive advice, which we wholeheartedly commend to readers, on recording new facts, interesting experiences, and describing new species. We certainly intend to give this chapter detailed study ourselves.

In conclusion we would state again that no entomologist is either too old or too young to have this book on his shelves.

S. N. A. J.

THE LEPIDOPTERA OF FORMBY (Raven Ent. & Nat. Hist. Soc., March 1958; 2/6). A foreword by Allan Brindle gives an insight into the persons concerned and the topography and flora of the district; C. de C. Whiteley contributes a biographical note on Col. G. de C. Fraser, the founder of the society, and H. N. Michaelis writes an Introduction, all of which are well worth studying. There are two plates of Col. and Mrs. Fraser and a map of the district.

With so many worthy names associated with the district one would expect a very full list of species, and in this one is not disappointed. The list is very complete, with concise but interesting notes on each species. The only family which lags behind is the Nepticulidae (Stigmellidae), of which only three species are mentioned out of somewhere near eighty species attributed to the British list. A note stating that this family has not received proper attention should stimulate attention, and we know that Mr. Michaelis will not lag behind in this. We trust that shortly a supplement will make good this one small deficiency.

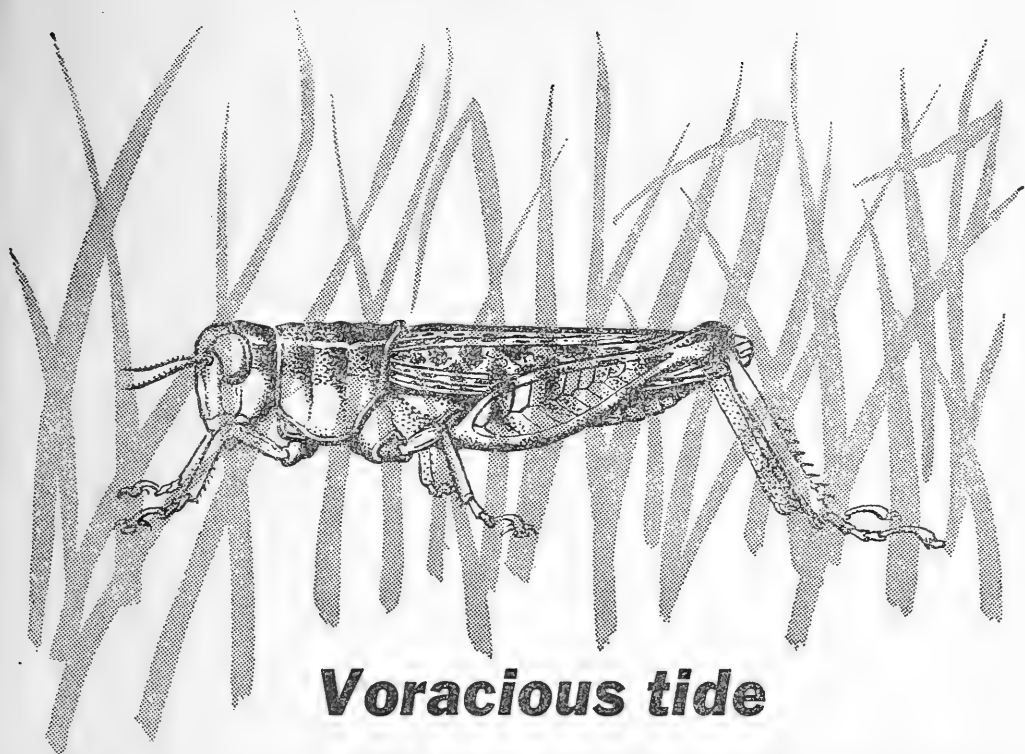
S. N. A. J.

FLORA OG FAUNA, the Danish quarterly for March 1958, carries a well illustrated paper by Dr. Skat Hoffmeyer on all abnormalities in macro-lepidoptera commencing with a note on a specimen of *Agrotis vestigialis* Hufn. exhibiting reduplication of the left antenna, and citing a parallel case of *Xanthia lutea* Strom. mentioned in the 1956 South London Proceedings. Part B deals with new short-winged (*brevipennis*) forms, while C covers what may be called "normal" variation, that is, symmetrical colour and pattern modifications. Part D mentions four cases of homoeosis, part E deals with asymmetry in both shape and pattern of lepidopterous wings, while part F mentions unusual second broods of a number of species in 1953, and particularly of *Thera variata* Schiff., normally single brooded in Denmark, as opposed to *T. obeliscata* Hb., normally double-brooded. In 1955 *T. variata* produced a second brood, and has continued to do since that year.

Knud Juul describes *Eupithecia millefoliata* Rossl. as a species new to the Danish list, a larva having been beaten from yarrow at Aarhus in x.1956, producing an imago in 1957.

S. N. A. J.

We regret that Current Notes, Field Notes, Collecting Notes, and Practical Hints have had to be held over this month owing to pressure on space.



## Voracious tide

Stoneless, soft, immensely fertile, the Argentine *pampa* stretches sea-flat to the horizon—an ocean of whispering grasses where vast herds of cattle graze, and which knows a deadly and dangerous tide.

For the advance of the pampa grasshoppers is tide-like in its relentlessness. *Tucura*, the *criollos* call them, 'locust-like' in their rapacity. Nothing green or growing is immune to their feeding, and when the tide has passed the hot wind of the pampa blows over a stubbled waste of destruction.

To-day however, in San Luis, La Pampa, Buenos Aires and Córdoba, the precious grazing lands and forage crops

of alfalfa are at last being protected—by dieldrin, developed by Shell. Applied from the air as a spray (150 gms. of dieldrin to 6 litres of diesel or gas oil per hectare—or 50 gms. to 2 litres, using the strip method) dieldrin not only controls *tucura*, but controls it for at least 25 days after application.

When it is borne in mind that infestation can spread over 10 million hectares annually, involving losses—in reduced meat production, devastation of pastures and diminished yields of alfalfa seed—approaching 60 million U.S. dollars, the value of dieldrin to the *estancieros* is clear. Dieldrin is indeed the wall which halts this voracious *tucura* tide.

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## EXCHANGES AND WANTS

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All material for the magazine should be sent to the Editor.

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# Biological Notes on *Aricia agestis* (Schiff.) in Britain

## Part I

By F. V. L. JARVIS, B.Sc., F.R.E.S.

Four years ago Mr T. W. Jefferson suggested to me that it would be wise to try and establish the status of the unique race of *Aricia agestis* (Schiff.) found only on the north east coast of England before industrial encroachment and other factors exterminated the few remaining colonies. We started an ambitious programme of which my part was rearing, breeding and larval welfare. Jefferson wisely chose the historic and taxonomic aspects of the problem. Properly to define the Durham coastal race (the so-called "salmacis"), the characteristics of *agestis* from Southern England, inland stations in Durham and ssp. *artaxerxes* from Scotland needed to be studied. We set ourselves six objectives which seemed to cover most aspects of the problem. Whilst all these have not been successfully achieved it is hoped that other workers may be able to help complete the story.

### OBJECTIVES

1. Detailed comparison of all stages, in controlled conditions of Southern English *agestis*, Durham coastal forms and ssp. *artaxerxes*.
2. Determination of voltinism, length of larval diapause and growth rate.
3. To test the effect of environment temperature on imaginal facies.
4. To search for other food plants than Rock Rose (*Helianthemum vulgare*) and Stork's Bill (*Erodium cicutarium*).
5. To find out whether association with ants was necessary for healthy larval growth.
6. By controlled temperature to coincide emergence of the different races in the hope of obtaining pairings for the study of genetics.

Procedure, in theory, was delightfully simple. Having obtained a large number of ova from selected females, a satisfactory method of overwintering larvae in segregated batches had to be devised and from the resulting imagines, retarded or advanced to simultaneous emergence, cross pairings in late spring were to be the culmination. Practice fell short of theory as will be seen from the results to be described, but some measure of success was obtained and the solution of the major problem of winter survival in captivity may be in sight.

The females lay readily if placed in a gauze-covered seven-inch flowerpot floored with damp sand. A few sprigs of rock rose and half a dozen flowers of knapweed and other Compositae are placed in bottles of water in the pot. The flower heads are moistened with a weak solution of honey and water. Stand the pot in sunshine, covering with a sheet of thin glass if the wind is chilly. Sprinkle the gauze with water every two hours, or more frequently in very hot weather. According to the temperature most females will lay up to 30 ova in a day and if vigorous will live for over a week.

In the experiments over three years about 700 hatched larvae over the three races were studied. Until the autumn of 1957 rock rose grown in pots was the only food plant in use. Then dove's-foot cranes-

bill (*Geranium molle*) was introduced with satisfactory results. Each pot of young larvae had to be covered with gauze supported on wire, firstly to maintain separation and secondly to protect against predators such as spiders, millipedes, earwigs and carnivorous beetles. Even with the precautions of standing the pots on fine wire gauze and growing in heat-sterilized soil entry was made in a few instances. Partially-eaten corpses coupled with the presence of suspects were sufficient circumstantial evidence. Losses from this reason were sometimes heavy but they were not the main reason for the appalling winter mortality. Neither do I think climatic conditions were entirely to blame. Three methods of wintering were employed after the larvae had settled to their diapause positions.

(a) The sleeved pots were bedded to soil level in part sunshine with a zinc cover a foot overhead to keep off heavy rain.

(b) Larvae in October were shaken from the pots and kept at 34 degrees F. in glass topped tins on slightly moistened cotton wool. Early in January the larvae were slowly warmed up.

(c) Open pots were used with an extension of paper three inches above the rim to prevent larvae falling off. The pots were kept outdoors in shade in a large, well-ventilated zinc cage. It might be added that about 100 larvae were placed in September 1957 on plants of rock rose in the garden. A close search in January revealed one larva and a complacent collection of millipedes and spiders!

All the above methods gave what appeared to be adequate shelter and normal climatic conditions, but still the larvae died. Using similar procedure I had been able to bring over 50 per cent of both *Polyommatus icarus* and *Lycaena phlaeas* through the winter. The following table summarises the results, and indicates the relative values of the methods. Where mortality occurred prior to diapause all the deaths except from predators took place after the diapause colouring began to appear *i.e.* in the week or so whilst the larva was becoming inert.

If anything can be deduced from these figures, it is that the refrigeration method is the best, and that the northern races have the greater potentiality of survival. All these rearings were at Bognor Regis on the Sussex coast. The northern larvae, therefore, were subjected to the same environment as that natural to southern *agestis*, so that local factors were eliminated. This was done to give a true comparison in identical conditions between the various races.

Rather less than half of the surviving larvae completed development to imagines at an average temperature of 60° F. (indoors). Mortality was in the first two or three weeks after feeding was resumed.

In an attempt to find a possible cause of this excessive mortality, a number of the dead larvae were examined both before and after diapause. In the majority of cases it was observed that shrivelling and blackening began on the last three body somites. In damp conditions mould developed on the blackened area. Eventually I isolated two larvae which had very recently died. Both showed no discolouration except in the honey gland on somite 10. This was black and congealed. Dissection of the gland revealed a coagulation below the cuticle spreading like a charred mass into the surrounding muscles and body cavity. It appeared that death had been due to congestion of the gland, with what seems to be a carbohydrate material. Reserves of carbohydrates,

possibly glycogen, accumulate in the body prior to diapause. It is suggested that attention by ants at this stage may be a necessary hygiene with some larvae which cannot remove the excess by secretion. Once larvae are feeding well in the spring, no further trouble occurs; neither do the summer larvae of the southern race die in this manner. The blackening was gradual from yellow brown to black itself. Associated fat was dissolved out in surgical spirit but the darkened mass was insoluble.

Both Heslop Harrison and A. E. Wright have suggested an associ-

<i>Form</i>	<i>Number of larvae hatched</i>	<i>Larvae in diapause and diapause instars</i>	<i>Method of wintering</i>	<i>Surviving larvae in January</i>	<i>% survival after diapause</i>
<i>Southern agestis</i>					
1955 Aug. Winchester	86	(very hot summer) 23 in II 2 in III	Sleeved pot. 34° F. to January	3	14
1956 Aug. Winchester	93	8 in III	Open pots, zinc cage	1	8.5
1957 Aug. Winchester	105	4 in IV 29 in III	Sleeved pots	0 (predatory losses)	0
1957 Aug. Royston	150	59 in III 2 in IV 1 in V	Sleeved pots	11 (predatory losses)	15.7
1957 Aug. Royston	47	10 in III 1 in IV	Sleeved pots	6	18
<i>Durham agestis</i>					
1956 July Blackhall	4	3 in III	Open pot zinc cage	1	33½
1957 July Blackhall	41	4 in II 8 in III	Sleeved pots	3	25
1957 July Sherburn	20	3 in II 7 in III	Sleeved pots	1 (predatory losses)	10
<i>ssp. Artaxerxes</i>					
1955 July Hawick	12	2 in II 5 in III	Sleeved pot. 34° F. to January	3	43
1956 July Hawick	68	18 in III 2 in IV	Open pots, zinc cage	4	20

ation with ants, and a recent paper by Gowan C. Clark and C. G. C. Dickson has shown that attention by ants to at least one African Lycaenid larva is essential to survival. That this process may be necessary with *agestis* larvae has yet to be demonstrated. Larvae in instars IV and V are ignored by the black ant, but this proves nothing. It should not be difficult to test this suggestion in September, with young larvae growing on pots of rock rose sunk in the ground near ant colonies on the natural sites.

If servicing by ants does indeed take place before diapause, it will

be interesting to see if these larvae survive the winter better than untreated larvae. As a wintering method I rather favour the period of cooling to 34° F. Larvae can be inspected regularly and no predatory losses are possible.

#### BRITISH RACES OF *A. AGESTIS*

Initially the division is between the univoltine form in Northern Britain and the bivoltine and potentially trivoltine form found in Britain roughly south of a line from the Wash to South Wales. The univoltine group contains ssp. *artaxerxes* from Scotland; the unique overlap or hybrid population of the Durham littoral; and the more typical Northern English race extending from inland Durham, Yorkshire, Derbyshire across to Westmorland. The principal characteristic of the Durham littoral colonies is the constant appearance in small numbers of insects resembling *artaxerxes*, together with intermediate forms of variation. In the Westmorland area extreme forms of *ab. albiannulata* occur, but so far *artaxerxes* has not been taken there. The inland Durham *agestis* resembles in appearance the Southern English forms except that there is a greater tendency to reduction of the upperside marginal lunules.

In the absence of genetic data it is not proposed to advance any theories of origin, except to repeat the obvious hypothesis that in the three or four main glaciations of the Pleistocene gradual, but extensive, movements to the South into the Continent and the reverse migrations in the warm interglacials caused overlap and interbreeding in closely allied forms. *Artaxerxes* stands out today as the unique subspecies in the whole range of *A. agestis*, but it is more likely, in the light of cooling experiments on larvae and pupae, that it arose from an *albiannulata* archetype and evolved gradually to its present appearance. Before detailing comparison of larvae and pupae it seems logical at this stage to include the notes on voltinism, larval diapause and growth rate.

Diapause is a condition of complete cessation from feeding. Its onset is indicated by increasing lethargy and in *A. agestis* a definite colour change a week or so before diapause commences. Larvae move to the lower leaves of the foodplant, spin a thin silk mat on the under surface of the chosen leaf and become inert. During the winter the leaf may become detached but the larvae still possesses enough muscular activity in mild weather to crawl on to low stems or surrounding roots. In the spring feeding commences on the young rock rose shoots pushing up from the base of the plant. During the period of diapause warmth may cause the larvae to move slowly, but no feeding will take place.

In the hot summer of 1949 Mr. Jefferson sent me on 6th July some *agestis* ova from Sherburn (an inland Durham site). I was then living in Surrey. The ova were put in a gauze sleeve on rock rose growing in the garden. Hatching took place on 18th July and by 30th July the larvae were moulting into Instar II. But by 14th August all larvae were dead and shrivelled. Temperatures were well into the 80's F. with drought conditions which were evidently too severe for the Northern larvae. As I know now, they had reached the time for diapause prematurely, and were unable by reason of their genetic univoltinism to grow further; they could not leisurely accumulate their food reserves and so died. At the same time I had a quantity of ova

of *Polyommatus icarus* from Blackhall (Co. Durham)—also a univoltine race. These were growing on pots of *Lotus corniculatus* beside the rock rose, but the *icarus* were evidently more adaptable as they passed into diapause in Instars II and III at the end of August and most of them survived the winter. It is noteworthy that in this species also there was no attempt at a second emergence, but on the Surrey Downs quite early in August both *A. agestis* and *P. icarus* were giving strong second emergences. A small third emergence of *P. icarus* was found in Surrey and Sussex in mid-September.

In 1955, 1956 and 1957 Northern and Southern *agestis* (the broods already described under "mortality") were again reared in the same environment at Bognor. In every instance the northern forms retained their univoltinism. Tabular comparison with southern *agestis* shows clearly the difference between the races.

#### I. *Southern agestis* (Royston):

Sixty eggs laid by a Royston (Herts.) female about 25th June 1957—at the end of the first emergence—produced 37 imagines between 18th and 24th August, the males emerging about 4 days before the females. A pairing was obtained from this emergence. From the 47 ova, eleven larvae passed the winter diapause in Instars III and IV and six survived the winter. From the original June ova two larvae entered diapause in August (Instar IV) but unfortunately both died in November. From this occurrence it is interesting to note that as far South as Royston there seems to be a trace of univoltinism which is supported by the staggered first emergence in this area. In 1957 *agestis* began emerging after the middle of May and continued at intervals to the end of June. There was a large second emergence in the first three weeks of August. By comparison, at Winchester and in West Sussex the first emergence was over by the end of May; second emergence was from the last week in July until the second week in August.

#### *Southern agestis* (Winchester):

In the last week of July, 1957, a Winchester female (from the second emergence) deposited about 100 ova. The majority of the young larvae went into diapause in Instar III at the end of September, but a portion continued growth and gave a third emergence (3 males: 13 females) from 12th to 21st September, with one belated female which emerged indoors on 14th November.

These two accounts demonstrate the bi-voltine nature of the southern *agestis*, with potential trivoltinism in warm conditions and give a hint that towards the Midlands there may be some admixture of the northern univoltinism. We have not yet transplanted southern forms into the north of England but the fact of the September/November emergences suggests that even in the slightly lower temperatures of the north bi-voltine behaviour would be attempted. Whether eventually a uni-voltine form would arise is a matter for conjecture. The above results can be summarised for growth rates as follows:

<i>Duration in ova</i>	<i>Duration of larval and pupal stages</i>	<i>Average temperature</i>
Royston 9 days	Males 52 days: females 56 days	55-60° F.
Winchester 9 days	Males 42 days: Females 47 days.	65° F.

The portion of Winchester larvae in continuous growth reached Instar III from 11th-16th August and had moulted into Instar V by 22nd August. On that date most of the diapause larvae were still in Instar II. Diapause must be effective from the commencement of development.

II. *Southern agestis*: Larvae from second emergence passing into Diapause:

It is difficult to decide to within a week when a larva passes into diapause so that the date given for commencement should be given a tolerance of three days on either side. This applies equally to the northern larvae. In both southern and northern forms the eggs hatched in about 12 days compared with 9 days for non-diapause larvae. Environment temperature was the same to within a degree or two in all cases.

	Period from hatching to diapause		Diapause Instars
Winchester	22nd Aug.-28th Oct.	67 days	III IV
"	10th Aug.-28th Sept.	49 days (hot weather)	II III
Royston	18th Aug.-28th Oct.	71 days	III IV
"	3rd Aug.-28th Sept.	56 days	III
III. <i>Northern agestis</i> ssp. <i>artaxerxes</i>	Period from hatching to diapause		Diapause Instars
Hawick	14th July-15th Sept.	63 days.	36 in. III : 2 in IV
"	27th July-3rd Oct.	68 days.	III
"	15th July-15th Sept.	62 days	III
<i>agestis</i>			
Blackhall	27th July-15th Sept.	50 days	II III
"	25th July-15th Sept.	52 days	III
Sherburn	25th July-15th Sept.	52 days	II III

In the same environment there is no significant difference in the pre-diapause growth rate between southern and northern forms, but from reference to the summer data for Royston and Winchester data it can be seen that all northern forms hatched at Bognor sufficiently early to complete a full cycle had they the potentiality. Obviously they could not and so maintained the integrity of their univoltinism even in the blandishments of the south. Mr. Jefferson told me he knows of no record of any second emergence with northern *agestis*.

#### *Duration of diapause:*

Larvae brought into an average temperature of 55° F. began feeding in most cases early in January but a few did not respond until February (*artaxerxes*). Effectively the diapause is terminated at this date but by observation it was noted that feeding only occurred above 48° F. This means that on natural sites there would be very little growth in January and February, an increase in March and serious development from April onwards. In this respect the North is 2-3 weeks later than the South.

The approximate lengths of diapause are as under:

Southern <i>agestis</i>	3 months.
Durham <i>agestis</i>	4 months.
<i>artaxerxes</i>	3½ months.

#### *Growth rates after diapause (Individual larvae)*

In the following experiments all larvae were kept indoors at an

average temperature of 60° F. The food plant was rock rose growing in pots.

<i>Southern agestis</i>		<i>Period from resumption of feeding to emergence</i>	
Winchester	Instar III	19th Jan.-11th April.	82 days
„	Instar II	25th Jan.-22nd April.	87 days
„	Instar III	10th Jan.-19th April	99 days

---

Average 89 days

*Northern agestis*

<i>ssp. artaxerxes</i>	Instar III	20th Jan.-12th April	82 days
„	III	29th Jan.-2nd May	93 days
„	III	15th Feb.-4th July	139 (This larva had 2nd diapause in April-May)
„	III	10th Jan.-26th April	106 days
„	III	10th Jan.-19th April	99 days

---

Average (omitting No. 3) 95 days

As with pre-diapause there is practically no difference in growth rate between southern *agestis* and *artaxerxes*. There is no obvious reason for the second period of diapause in the third *artaxerxes*. It may possibly be a relic of an ancient two-year cycle.

This is not an unreasonable assumption if we accept the theory that *artaxerxes* developed into its present form in sheltered areas in Northern Britain during the last glaciation in which the permanent ice was confined to high land in that area. Even so the freezing level during summer would be lowered by 2-3,000 ft. giving a fall of mean temperature of about 7° F. In present conditions *artaxerxes* occupies approximately 200 days out of 365 in development, the remaining 165 being taken up by diapause and late winter inactivity. At Hawick the mean temperature from April to September is 47° F. If this is reduced to 40° F. the growth period is increased to 270 days. But the climate in Scotland during this glaciation would have been similar to the interior of Iceland today, where the short summer limits development virtually to the months May-September—150 days at the most. If *artaxerxes* possessed the same growth rate at a given temperature as it now has—and there appears to be no reason to assume otherwise—it would have to spread its cycle over two years. The first winter diapause would have been in Instar II and the second in Instars IV and V with emergence the following summer. Several northern moths are known to possess two-year cycles.

The experimental growth periods can be converted to actual field growth periods by using the rule that in free growth, the metabolism of a cold-blooded organism is doubled by every 18° F. (or 10° C.) rise in environment temperature. By testing, this is found to operate as well with *agestis* as with a number of other species. In the Winchester area the mean temperature from February to June is 45° F. The average of 89 days at 60° F. becomes 150 days at 45° F. Therefore the post-diapause growth period should extend from early January to the end of May, which is in close agreement with observed records for natural emergence. At Hawick, the mean February to June temperature is 43° F.; 95 days at 60° F. become 170 days at 43° F., that is from mid-January to late June, again agreeing with field records

The only available post-diapause data for Durham larvae is from four larvae which commenced to feed after the middle of January. Unluckily they died in February, but with a January/February mean temperature at Sunderland of 42° F. and a somewhat longer diapause than in *artaxerxes*, the theoretical emergence date should be early to mid-July, assuming a similar growth rate. This is the observed time of emergence in this area.

Therefore it can be seen that univoltinism is a complete adaptation to the temperatures of Northern Britain. It is apparently fixed in the genetic formula of the northern races and unaffected by the higher temperatures of the South. An attempt was made to pair two of the *artaxerxes* emerging in April. A large cage was used; in sunshine, the temperature rose to 70° F., but nothing happened except a batch of sterile ova. So we still do not know how *artaxerxes* larvae hatching in May would behave.

The valency of the southern diapause appears to be less than in the northern form and also conditional.

The period of actual diapause is 2-4 weeks shorter in the south. Higher temperature permits emergence and pairing in May/June when the curve of temperature and solar radiation is upwards. Obviously the factors for diapause are present in the early summer larvae, but they are not conditioned or suspended for a generation and only become operative after mid-summer when the radiation curve is downwards. Even then in hot summers there may be a partial third brood, but until we can succeed experimentally in pairing northern *agestis* early in the summer we cannot say definitely that a second emergence is impossible from the northern races.

The fact, however, that Winchester ova laid at the end of July produced a partial third emergence in September, whilst Durham and Scottish ova laid nearly a month earlier always produced diapause larvae, strengthens the opinion that diapause valency is higher in the North. It is interesting to note that summer larvae (southern) take about 60 days at 60° F. to complete the cycle, from egg-laying to emergence, whilst both southern and northern diapause forms reared in the same conditions spend roughly 60 days from egg-laying to diapause at the same temperature, and in experimental conditions at 60° F. another 90 days from end of diapause to emergence. It would appear that when the diapause factor is active, growth rate is slowed down throughout the cycle.

If this view is correct there must be a zone in the Midlands where bi-voltine and uni-voltine forms overlap. It has been shown that northern uni-voltines do not change their character in the South; therefore they are unlikely to do so in the field and must have a limiting southern boundary. In the same way there must be a northern limit to the bi-voltines. Thus we have two races separated by the time of emergence. Bi-voltines extend to the north of East Anglia and uni-voltines extend to South Derbyshire. This is a physical gap of less than 100 miles.

At this stage we are not sure of what happens in between. Any reliable records of emergence from the Midland counties would be invaluable in defining this overlap zone.

(Part 2 to follow)



*Feltia (Euxoa) segetum* Schiff., 1775

## SOME REMARKS ON SOME OF ITS NAMES

By W. PARKINSON CURTIS

The late Mr. Henry Jerome Turner during the latter part of his life attempted to bring before British collectors the numerous name changes and additional names affecting the Noctuae dealt with by J. W. Tutt in his four volumes on the *British Noctuae and their varieties*. In Vol. II of Turner's supplement, pp. 14 et seq., he there dealt with *Agrotis* Och. (*Euxoa* Hub.) *segetum* Schiff. and at page 20 he refers to ab. *virilis* Stauder and ab. *nocturna* Stauder. I read the descriptions and first of all the dimensions of *virilis* and next the colour seemed so far removed from anything I knew of *segetum* that I was puzzled and to add to my bewilderment I found a reference to *orientaria*, a name I could by no means trace in *Noctuidae*.

The only solution to my troubles seemed to be to go to original sources which I did. The references were to the *Internationale Entomologische Zeitschrift*, a publication of an Entomological Society in Guben Brandenburg, Prussia. It has on page 3 of Volume 9 (1915-16) a "Beitrag zur Kenntnis der Lepidopteren fauna Südtirols" by H. Stauder of Triest, which ends on page 4 with no. 369 and the words "Fortsetzung folgt".

Page 7 follows on with No. 370 and ends with 431 *Ematurga atomaria* var. *orientaria* Stdgr. and ♀ ab. *unicolaria* Stdgr. so that solved where *orientaria* came from, viz. family *Geometridae*. After 431 come the words "Schultz folgt". This conclusion appears on p. 16 and opens with Nov. aberr. ♀ *virilis* m. followed by Nov. aberr. ♀ *nocturna* m. followed by No. 432 so certainly—although there is no generic heading to the paragraphs of this conclusion and it is only by reference back that the generic name comes to light since the conclusion does not give a "concluded from p. 7" which would be helpful to the reader—these names belong to *Ematurga atomaria*.

The trap into which the author (and/or his amanuensis?) fell seems certainly to be the fact that on page 12 of Vol. 9 of the *Int. Ent. Zeit.* Herr Hannemann commences a paper on the *Euxoa-Feltia-Rhyacia* noctuae as they are dealt with in Seitz *Macrolepidoptera of the World*. That again is piecemeal and page 12 ends with the usual "Fortsetzung folgt". Unfortunately the copy of this publication in the Library of the Royal Entomological Society of London is incorrectly bound and pp. 7 and 8 followed 11 and 12 with the result that the conclusion of the Beitrag on South Tyrol is the next page to the "Fortsetzung folgt" of the article on *Euxoa* and was apparently taken to be the next part of that paper and so led to p. 16 being referred to instead of p. 33 where the *Euxoa* paper also without generic heading plunges straight into *corticea* Schiff.

What an amount of time, trouble, irritation and mistakes would be saved if publishers opened continuations with "continued from page—" and repeated the heading with sufficient subheading to indicate how far the author had progressed.

Delving about amongst these names led me also to consider *albiptera* Turati (1921), *minorata* Turati (1924), and *pseudocos* Turati (1924).

*Albiptera* appears in the *Atta della Società Italiana di Scienza Naturali*, 1921, Vol. 60, p. 225, and is, I have little doubt, referable to *segetum* Schiff. though the figure seems to have been retouched on the plate and its value diminished.

*Minorata* and *pseudocos* are from the same publication, 1924, Vol. 63, p. 61. Under *pseudocos* Turati refers to *Agrotis sicula* Oberthür and suggests that Oberthür based this name upon the single specimen figured by Culot. My knowledge of Italian being nearly nonexistent I got a first class Italian scholar to check up my reading and am satisfied that I read Turati correctly. The fact is that Oberthür has no responsibility for the name *sicula*. The insect Culot figured was figured by Boisduval in his *Icones*, pl. 73, pg. 5. The type was inspected by Guenée who thought notwithstanding the bad condition of Boisduval's type that it was not referable to any other species. Culot, Vol. 1, p. 86, repeated the statement but in a way which gives the impression that Guenée expressed his view emphatically. The emphatic statement in the last line or so of the paragraph on p. 276 of Vol. 1 of Guenée's *Noctuelites* (being Vol. 5 of *Species General* of Boisduval and Guenée) is to the effect that *sicula* cannot be confused with either *aequa* or *agricola*. As a very great number of Oberthür's Noctuae are now in the British Museum I doubt not that Boisduval's type is amongst them though I have had no opportunity of looking for it.

Turati states that he would wish to refer even this specimen to *segetum* Schiff. as an aberration, a conclusion which I feel certain would be accepted by anyone familiar with *segetum* throughout its geographical and variational ranges the latter being even more extended than the former.

## Was the Large Copper ever an Irish Insect?

By RAYMOND F. HAYNES

The recent notes on the former distribution of *Lycaena dispar* Haw. in England and the appeal for old records, prompts me to draw readers' attention to what may come as a surprise to many people: The possibility that *L. dispar* was once an inhabitant of Ireland.

What evidence is there for this statement? Unfortunately Donovan's Catalogue of the Macro-Lepidoptera of Ireland omits all reference to the butterfly, so I would like to put before everyone's attention such information as I have been able to derive from other sources.

It may not be generally known that an attempt was made to introduce *L. dispar rutilus* into Ireland. Full details were described in a long article which appeared in the *Proceedings of the Entomological Society of London*, Vol. IV (1929). Briefly the story was as follows: An apparently successful effort to establish *L. dispar rutilus* into Southern Ireland was attempted by Capt. E. B. Purefoy in 1913. The site for the experiment was a snipe bog and the surrounding terrain, in the vicinity of Greenfields, Co. Tipperary. The ground was cleared and the foodplant (*Rumex hydrolapathum*) was introduced from England. Larvae of *rutilus* were sent by Herr H. Rangnow from a locality near Berlin out of which only some eight imagines were bred and released.

In May 1914, Capt. Purefoy went to Berlin and visited the marshes where *rutilus* occurred. Some 700 larvae were brought back to Greenfields and kept under nets as many of the caterpillars were parasitised. About 400 imagines were later bred and released to form the forerunners of a fairly thriving colony. This colony was apparently still flourishing in 1928 but according to Mr. B. P. Beirne, writing in *The Entomologist*, Vol. LXXV, 1942, p. 82, the locality was not visited after that year (1928), and without any attempt in the way of clearance of undergrowth it is highly doubtful if the Large Coppers held their own.

An artificial introduction, however, into a country, does not constitute a native species; so it is necessary to search old books for obscure references. Quite by chance in 1956 I was given a copy of the *Proceedings of the Natural History Society of Dublin* for the Session 1865-66, Vol. V, Pt. I, and on page 20 appears an interesting account about Irish Lepidoptera by Mr. W. A. Andrews, V.P. The section relating to *L. dispar* reads thus: "Some years since, when botanizing in the County of Kerry, at the south-eastern extremity of Castlemaine Harbour, and while collecting *Bartsia viscosa*, where extensive marshes stretch towards Milltown, Mr. Andrews noticed a swift-flying insect, which he attempted to capture. From its size and brilliancy of colour, he was satisfied that it could be no other but the Large Copper Butterfly (*Lycaena dispar*). Having no net, and the drains being wide, it escaped. Although at one time this insect was plentiful in the fenny districts of England, yet drainage has so altered the features of the country, that it had disappeared from those localities that were accessible to collectors. There is no reason to suppose, where such favourable districts present themselves as the south-western part of this country, that that insect, as well as others equally rare, may not be met. Already many rare instances of zoology have been recorded from those localities, and therefore the inference is strong that equally striking facts of interest may yet be noticed."

Mr. B. P. Beirne, writing in *The Entomologist* (see above) criticises Mr. Andrews' records as being unreliable. After nearly a century, it is impossible to corroborate such an old record but as a matter of interest it was Mr. Andrews who first recorded *Gonepteryx rhamni* Linn. as an Irish insect and doubts were expressed for nearly twenty years before another entomologist, Mr. Edwin Birchall, confirmed the record by taking specimens himself. This Milltown locality, to the best of my knowledge, was never visited by any other collectors. I have read all or nearly all of Birchall's writings about Irish entomology and he certainly didn't collect there; neither did Kane at a later date.

The remote possibility, therefore, exists that if Mr. Andrews' identification all those years ago was correct, *L. dispar* once inhabited that part of South-West Ireland. Whether it still does so is extremely dubious.

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 W. Andrews, V.P. "Notes on Irish Lepidoptera", *Proc. of the Nat. Hist. Soc. of Dublin Session, 1865-66*, Vol. V, Pt. I.

## Some Notes on the Microlepidoptera of Gloucestershire

By L. PRICE

These notes are written in the hope that they will prove interesting in so far as they provide confirmation that certain species mentioned in the list of microlepidoptera of Gloucestershire published by T. Bainbrigge-Fletcher and C. Glanville Clutterbuck, as being recorded many years ago, are still to be found in the county. A few of the species mentioned are new records for the county.

*Alispa angustella* Hubn. This species was noted by Perkins at Redlands as scarce: no date given. One specimen taken at m.v.l. 20.ix.1956 at Througham Slad.

*Lozopera beatricella* Wals. Recorded by T. B. Fletcher from Rodborough, 22.vi.1937. In the places where this moth does occur it seems to be common, as from a bundle of *Conium* stems gathered at Claypits during the winter of 1955-6 some 180 specimens were bred, emerging during June 1956.

*L. dilucidana* Steph. The County List states "not taken since 1852; up-to-date records required". A locality for this species was shown me by Mr. A. F. Peacey not far from Chapman's Cross between Chalford and Cirencester. From stems of *Peucedanum sativum* gathered during the winter of 1955-6 13 moths emerged during July 1956.

*Ancylis obtusana* Haw. Fletcher & Clutterbuck state: "Durdham Down: an almost prehistoric record. Confirmation desirable." Three specimens have been taken by me at Dymock. Two were netted 7th June 1953 and one on 16th June 1954.

*A. uncana* Hubn. Clutterbuck states: "no record in Gloucestershire but may occur where birch grows." While beating birches at Soudley, Forest of Dean, on 25th June 1955, one specimen was netted as it flew from the trees.

*Depressaria chaerophylli* Zell. Previously reported by Perkins from Almondsbury. Date not stated. One specimen taken at Dymock 4th May 1957.

*D. umbellana* Steph. The most up-to-date record was Gorsley, 1905, by the Rev. G. M. Smith. For several years I had made a search for this insect as I felt it must occur amongst *Ulex* in the Forest of Dean. I found it at last on 30th November 1957, when two specimens were beaten from gorse.

*D. assimilella* Treits. Previously recorded from Bristol and Almondsbury by Perkins. Having noted broom growing in Dymock Forest, a search for larvae in May 1955 resulted in the successful breeding of 8 moths. Unfortunately the plants from which these larvae were obtained were destroyed by tractors the following winter and I have not yet been successful in finding any more.

*D. ocellana* Fabr. Reported from Stapleton and Florfield by Perkins; no date given. Considering the amount of sallow which occurs, this species does not turn up very often. I have beaten out two specimens only, one at Westonbirt on 20th November 1955 from spruce needles, and one at Cannop Ponds, Forest of Dean, on 25th February 1957 from bracken.

*Glyphipteryx forsterella* Fabr. Clutterbuck states: "not recorded from Gloucestershire but may occur." While collecting at Cannop Ponds on 1st June 1957 I noted half a dozen specimens of this moth resting on the flowers of a low-growing rush.

*Scythris grandipennis* Haw. Perkins states: "Bristol; plentiful on downs, Thornbury." Dates are again not given. A search among gorse near Cinderford revealed a few webs from which one moth was reared, emerging 24th June 1954.

*Coleophora frischella* L. Perkins states: "Gloucester (Merrin). This species may occur but Merrin's record requires confirmation; it is perhaps an error for *spissicornis* which he did not record." One specimen came to the m.v.l. in my garden at Stroud, 28th July 1955 (confirmed by A. F. Peacey).

*Lithocolletis comparella* Dup. 1843 (Zell. 1846). Clutterbuck states: "Should occur in Glos.: local in Oxon and Hereford." Eight specimens were bred in August 1955 from mines in aspen leaves obtained at Dymock, and eleven more in August and September 1956 (confirmed by S. Wakely).

*Cerostoma caudella* L. Recorded in Stainton's *Manual* from Bristol. Two specimens were beaten from trailing stems and accumulated box leaves at Highnam, 21st January 1956, one out of trailing stems 27th December 1957; also one specimen taken at a Tilley lamp at Dymock, 4th May 1957.

*Tinea fulvimitrella* Sodof. One specimen recorded fifty years ago (1906) from Symond's Yat by Clutterbuck. One specimen was netted at Cannop Ponds, Forest of Dean, 26th June 1954.

In conclusion it is perhaps interesting to record the capture of a rather worn specimen of *Peronea umbrana* Hub., 2nd January 1958. It was beaten from bracken while beating for *Gracillaria betulicola* Hering. I note that both Meyrick and Ford give the dates for this insect as August to October, but perhaps it hibernates like some other members of the genus *Peronea*.

"Springdale"

Rodborough Ave.,  
Stroud, Glos.

## The Alps in 1957

By Lt. Col. W. A. C. CARTER, R.A.

(Continued from page 131)

July 8th was our last day. It was very sultry and the strong wind was unrefreshing and exasperating. We went down beyond Bludenz and, thence, up the Montafontal. We turned off just beyond Löruns and followed a narrow track alongside the river; it was very pleasant but the butterflies were not very exciting. *Erebia ligea* was common and there was an abundance of *E. euryale isarica*. Males of *coridon* were frequent and I took one female. There were occasional *minimus* and *semiargus* but, otherwise, no blues at all. Privet bushes were in full bloom and were well patronised by *Strymon w-album* Knock, *Limnitis camilla* L. and *Argynnis paphia* L. The latter were abundant and in first-rate condition—especially so on moist patches in the path where they made a strikingly beautiful show. It was a great pleasure

to see quite a number of *Apatura iris* L. They were in good condition but very difficult to catch; I managed to net one very fine male but the majority of them seemed to be always just out of reach. Also at damp patches in the path were immense numbers of Skippers but they were all either *syvester* or *venata*.

Early the next morning we set out for home. The weather had broken and it was raining most of the time as we went up over the Fernpass and, thence, through Lermoos and Ehrwald to Garmisch Partenkirchen. Here we turned northwards and, with infinite sadness, watched the mountains disappear behind us. The weather throughout the trip could have been better; from extreme cold at Heiligenblut we passed to excessive heat at Lech but, in between, we had every reason to be satisfied. We had covered a fair amount of ground but, in retrospect, there are many, many places which we would have liked to have visited.

We shall be in England next year and the date of our next visit to the Alps is anybody's guess.

A list of the butterflies seen is given below. I should point out that all the identifications have been taken from the illustrations in *F. & W.*; they have not been checked and may, in some cases, be incorrect. Localities referred to in the list are as follows:—

HEILIGENBLUT—Includes KLEINE FLEISSTAL, MÖLLTAL, GÖSSNITZTAL, HARITZERSTEIG. Ht.: 4,250-6,800 ft.

RESCHEN—The area immediately south of the pass and on either side of the main valley. Ht.: 4,800-6,000 ft.

MALS—The valley of the Rrambach leading towards the Offenpass. Ht.: 3,250 ft.

ENGADINE—A single locality between ARDEZ and SCHULZ. Ht.: 4,500 ft.

LECH—Ht.: 4,500-5,800 ft.

ZÜRS—Ht.: 6,400-7,500 ft.

DALAAS—Path to FREIBURGER HUTTE. Ht.: 3,500-4,200 ft.

MONTAFONTAL—Near LÖRUNS. Ht.: 2,700 ft.

<i>Papilio machaon</i> L.	...	...	Reschen, Dalaas, Mals.
<i>Parnassius apollo</i> L.	...	...	Common but not found in Arlberg.
<i>phoebus</i> F.	...	...	H'blut—one only.
<i>Aporia crataegi</i> L.	...	...	Common below 4,000 ft.
<i>Pieris brassicae</i> L.	...	...	} Common everywhere.
<i>rapae</i> L.	...	...	
<i>napi</i> L.	...	...	
<i>bryoniae bryoniae</i> O.	...	...	
<i>Anthocaris cardamines</i> L.	...	...	H'blut, Mals, Lech.
<i>Gonepteryx rhamni</i> L.	...	...	Mals.
<i>Colias phicomone</i> Esp.	...	...	} Common.
<i>hyale</i> L.	...	...	
<i>australis</i> Vrrty.	...	...	
<i>Leptidea sinapis</i> L.	...	...	H'blut, Mals, Reschen.
<i>Erebia ligea</i> L.	...	...	Dalaas, Montafontal.
<i>euryale isarica</i> Heyne	...	...	Lech, Dalaas, Montafontal.
<i>ocellaris</i> Stgr.	...	...	H'blut.
<i>adyte</i> Hbn.	...	...	Reschen.
<i>melampus</i> Fuessl.	...	...	Lech.

<i>melampus momus</i>	Fruhst.	H'blut.
<i>epiphron</i>	Knock	Lech.
<i>pharte</i>	Hbn.	Lech.
<i>aethiops</i>	Esp.	Dalaas.
<i>triarius</i>	Prun.	Mals—a single worn female.
<i>medusa</i>	Schff.	H'blut—ssp. <i>dolomitica</i> Warr., Reschen.
<i>alberganus</i>	Prun.	Common everywhere.
<i>pluto</i>	Prun.	Zürs—one only.
<i>gorge</i>	Hbn.	Zürs—males only.
<i>tyndarus</i>	Esp.	Zürs, Lech, Reschen.
<i>cassioides</i>	R. & H.	H'blut.
<i>oeme</i>	Hbn.	Dalaas.
<i>pandrose</i>	Bkh.	Lech, Zürs.
<i>Agapetes galathea</i>	L.	Common everywhere.
<i>Oeneis aello</i>	Hbn.	Zürs—very worn.
<i>Hipparchia semele</i>	L.	Mals.
<i>Satyrus ferula</i>	F.	Mals.
<i>Aphantopus hyperantus</i>	L.	Montafontal, Mals, Reschen.
<i>Dira petropolitana</i>	F.	Common but very worn.
<i>maera</i>	L.	Dalaas, Reschen.
<i>Hyponephele lycaon</i>	Rott.	Mals.
<i>Coenonympha iphis</i>	Schff.	Dalaas.
<i>arcania</i>	L.	Mals.
<i>satyrion</i>	Esp.	H'blut, Reschen.
<i>pamphilus</i>	L.	Reschen, Dalaas, Mals.
<i>Apatura iris</i>	L.	Montafontal.
<i>Limenitis camilla</i>	L.	Montafontal.
<i>Vanessa atalanta</i>	L.	Rather common up to 6,000 ft.
<i>cardui</i>	L.	H'blut.
<i>Aglais urticae</i>	L.	Rather common up to 6,000 ft.
<i>Inachis io</i>	L.	Montafontal.
<i>Euphydryas cynthia</i>	Hbn.	Zürs.
<i>aurinia</i>	Rott.	Lech.
<i>Melitaea diamina</i>	Lang.	Common.
<i>britomartis</i>	Assm.	Common.
<i>athalia</i>	Tott.	H'blut.
<i>parthenie</i>	Bkh.	Mals.
<i>cinxia</i>	...	Mals, Reschen.
<i>phoebe</i>	Schff.	Mals, Engadine.
<i>Mesoacidalia charlotta</i>	Haw.	Lech, Engadine.
<i>Fabriciana adippe</i>	Rott.	Mals.
<i>Argynnis paphia</i>	L.	Montafontal.
<i>Clossiana euphroisyne</i>	L.	Common but worn.
<i>titania</i>	Hbn.	Dalaas.
<i>Boloria pales</i>	Schff.	Zürs.
<i>napaea</i>	Hffmg.	Lech.
<i>alethea</i>	Hemming	H'blut, Lech, Zürs.
<i>Issoria lathonia</i>	L.	Mals, Montafontal.
<i>Strymon w-album</i>	Knock	Dalaas, Montafontal.
<i>Callophrys rubi</i>	L.	Reschen.
<i>Heodes vargaureae</i>	L.	Reschen, Mals, Engadine.

<i>tityrus</i> Poda	...	...	Common everywhere as ssp. <i>subalpina</i> Speyer.
<i>alciphron</i>	...	...	Mals as ssp. <i>gordius</i> Sulz.
<i>Palaeochrysophanus hippothoe</i> L.			H'blut.
ssp. <i>eurybia</i> O.	...	...	Reschen, Mals, Dalaas.
<i>Cupido minimus</i> Fuessl.	...	...	Common everywhere.
<i>Maculinea arion</i> L.	...	...	H'blut, Reschen, Mals, Dalaas.
<i>Lycaeides idas valesaica</i> Obth.	...	...	Engadine.
<i>argulus</i> Frey.	...	...	Mals.
<i>Plebeius argus alpina</i> Courv.	...	...	Reschen, Mals, Engadine.
<i>Aricia agestis</i> Schff.	...	...	Reschen, H'blut, Lech, Engadine.
<i>Agriades glandon</i> Prun.	...	...	Zürs, Lech.
<i>Albulina orbitulus</i> Prun.	...	...	Common everywhere.
<i>Cyaniris semiargus</i> Rott.	...	...	Abundant everywhere.
<i>Polyommatus eros</i> O.	...	...	H'blut—one male.
<i>icarus</i> Rott.	...	...	Reschen, Mals.
<i>Lysandra icarius</i> Esp.	...	...	Reschen, Mals, Engadine.
<i>argester</i> Berg.	...	...	Reschen, Mals, Engadine, Dalaas.
<i>bellargus</i> Rott.	...	...	Dalaas, Mals, Reschen, Engadine.
<i>coridon</i> Poda	...	...	Common everywhere below 6,000 ft.
<i>Agrodiaetus damon</i> Schff.	...	...	Reschen, Mals, Engadine.
<i>Meleageria daphnis</i> Schff.	...	...	Reschen, Mals.
<i>Erynnis tages</i> L.	...	...	Mals.
<i>Pyrgus carthami</i> Hbn.	...	...	Reschen, Mals.
<i>onopordi</i> Rbr.	...	...	Zürs.
<i>carlinae</i> Rbr.	...	...	Lech, Dalaas.
<i>serratulae</i> Rbr.	...	...	H'blut, Reschen.
<i>alveus</i> Hbn.	...	...	Reschen, Lech, Dalaas.
<i>armoricanus</i> Obth.	...	...	H'blut.
<i>Carterocephalus palaemon</i> Pal.	..	...	Lech—one male only.
<i>Adopaea sylvester</i> Poda	...	...	} In suitable places up to 6,000 ft.
<i>Ochlodes venata</i> B. & G.	...	...	

## Some Memories of S. G. Castle Russell

By Colonel S. H. KERSHAW, D.S.O.

(Continued from page 100)

Burkhardt, who had lived with and understood C.R. so well, was an ardent "var." hunter, whom nothing but snow could daunt, but once the insects were safely boxed, he much preferred to give them to C.R.; he had no wish to start a collection of his own. This did not suit C.R. at all; he had no objection to putting other people's captures in his collection, but disliked intensely receiving a gift without a more than generous *quid pro quo*.

As mentioned before, C.R. could be determined, not to say obstinate; finally to please his old friend, B. was forced to make a collection of his own. He did so with the intention of leaving it with C.R. to sell when he (B.) went abroad, then C.R. would be able to buy anything he wanted but would not accept as a gift.

The Russell Butterfly Collection is beyond description in an article



like this; suffice it to say that it contains black, white or cream vars. of every fritillary, together with extreme vars. of the Blues and every other species. Fortunately, you have only to go to Tring Museum to see it, thanks to the wise arrangements made with the British Museum by its trustees; it may not be dispersed outside the combined Rothschild—Cockayne—Kettlewell Collections.

Burkhardt thinks that in palmier days, before the need to augment his pension became pressing, Castle Russell's idea was to present his collection to Eton College as a monument to his life's work; Eton's loss has meant incomparable gain to the National Collections.

When Castle Russell arranged with Kettlewell and Cockayne for the purchase by the latter of this magnificent collection, the Butterflies of the Tring Museum were brought within reasonable distance of the high standard that the moths had been by the combined enthusiasm of Cockayne and Kettlewell, ably seconded by Mr. A. L. Goodson. Here is how Castle Russell himself described the transfer:—

"You will no doubt have heard by now that my collection has been transferred to the Tring Museum by the generosity of Dr. Cockayne. I had always intended that he should have the first refusal of it on generous terms on my demise, but although so much younger than I am, it seems that his life is so precarious that he considers it necessary to put his affairs in order.

"I am very sorry, as he is one of my oldest friends and was always very kind to me.

"The transfer has made him happy, I am glad to say, and we are both completely satisfied. What a lot he has done for the Museum without proper appreciation!

"It would take many collections equal to mine to bring the *Rhopalocera* up to the standard of the *Heterocera*, but anyhow there is now quite a decent show of the former. Personally I am glad to have the collection in the Museum, as it seemed a pity to break it up.

"Now that I am so limited in activities, I have lost much interest in the collection, as after all the hunting is the chief pleasure; I have to avoid steep inclines and walk at the rate of one mile per hour, so I cannot expect much of a bag."

Bravely faced, as C.R. had ever confronted set-backs; but he soon began to miss it sadly. Small wonder, since his collection had been his life's work, in which his whole interest was centred, but his pension was too small to cope with the cost of living and he had been living on his capital, as he had not expected to live so long.

Characteristically, at the age of 86, he began to build up a second collection and quickly amassed a small one of types and vars., which was a pleasure to look at; in his last season (1954) he bred a superb *aegeria* underside, netted a lemon-tipped *cardamines*, two albino *jurtina*, a radiated *sylene* and a number of minor vars. of *coridon*, *aegon*, *icarus*, *pamphilus* and others.

When Burkhardt went out East again, C.R. found a congenial spirit in Alan Collier, who had moved to Cranleigh in 1951, and together they carried out interesting breeding experiments—Collier with *galatea* and C.R. with *aurinia*, both with great success.

Collier writes, "His kindness to a comparative stranger was remarkable and memorable; I was at once shown all his favourite localities,

and later was able to make some return by finding new ones of easy access, a matter of importance at his age.

One was a secluded and sheltered down, which C.R. had known years before, but had been unable to find again; here in 1953 and 1954 he spent many hours examining a numerous and varying colony of *coridon*.

"For nearly four years I spent at least three mornings a week in winter with him; on warm days in the garden or conservatory, repairing cages or transferring larvae to new food plants.

"In cold weather, I should find him in his well warmed sitting room—kept as near 70° F. as possible—working on correspondence or articles for entomological journals."

Collier would help with any heavy task, such as refixing the heavy glass sheets, for-ever threatening to slide from the conservatory roof, and they would then settle down in front of the fire to discuss and argue on every subject under the sun. C.R. was deeply interested in current affairs and welcomed discussion, controversial or otherwise, as a relief from the almost Trappist silence of his life alone.

Miss Underhill, quick and intelligent as she was, could not enter fully into the more subtle and controversial side of entomology which was C.R.'s main interest; also her voice could not penetrate his deafness, whereas he could hear Major or Mrs. Collier without a hearing aid which he possessed, but detested.

C.R. had not been interested in genetics, nor could Collier convince him that the Mendelian laws were more than vague and unproved theories until C. converted him by promising and producing an ab. *lanceolata* of *hyperanthus* in the F.2 generation, from a female of that variety taken by C.R. in 1952. C.R. was surprised, delighted and convinced.

When C.R. asked me to spend a week with him at Cranleigh, I had not stayed with him for some years, so I asked Marcon about his likes and dislikes in the house and out collecting.

His reply was, "He will take you to his best localities, indicate the area which he advises you to work—almost invariably his best—and leave you to it, after fixing a time and place for tea—usually the car."

Tea was usually at 3.30, as C.R. rested during the heat of the day; he used an enormous tea-cup, holding over a quart, and if this was forgotten or mislaid, he was restless until it was recovered.

He found the long journeys to the South London Exhibition too trying in his later years, and wished that the Show could take place before the end of Summer Time. Whenever bad weather forced him to miss the Exhibition, the Craske brothers brought their season's catch for him to see—a graceful act which he greatly appreciated.

Castle Russell devoted the earlier part of the season to the lesser fritillaries, later on to the larger, and finally concentrated upon *coridon*, *aegon* and *bellargus*; he was also specially interested in *hyperanthus*, *jurtina*, *phlaeas* and *tithonus*.

But of all butterflies, I think, vars. of the larger fritillaries appealed most to him; for instance, when hunting *L. arion* in Devon with Ransome, he saw a melanic *aglaia* flit past and settled down to wait for its re-appearance, completely ignoring *arion*.

Whilst Mrs. Russell was alive, May and June were spent in Pamber, Chiddingfold and New Forests, July in Blean and New Forest

and August and September divided between Royston, Folkestone, Salisbury Plain, Winchester, Eastbourne or Shoreham, as the state of the colonies of Downland Blues dictated.

After her death, the routine was re-arranged; he seldom spent a night away from home. He had acquired several pet cats and they proved a tie.

He dealt with correspondence after breakfast and at 11 a.m., on a fine day, Miss Underhill appeared with thermos and sandwich cases, and C.R. and any friend staying with him were driven to the selected locality and probably joined by the Colliers; they usually reached home about 6 p.m.

P. B. M. Allan, who was one of his closest friends and one of the last to stay with C.R., has told me of an expedition when C.R. walked him off his legs at the age of 87. "In 1953", he writes, "C.R. being then 87, Miss Underhill drove us one day to a favourite hunting ground in Surrey. The car was parked under a beech tree some three-quarters of a mile from our objective, and C.R. piloted me along hedgerows and through rough coppiced bottoms to the foot of an escarpment which seemed to me about a hundred feet high, with a gradient of about one in two. 'We're not going to climb up that, are we?' I asked, apprehensively. 'Yes', said C.R.; 'the common's at the top. Come on'. At that time I was still a fairly active man; I could run after a motor-bus in London and jump on it while it was gathering speed; but compared with C.R. that day I was old and decrepit. Never would I have believed that a man of his age could go up that escarpment in the way he did. 'Come on', he said, turning round to encourage me as I lagged farther and farther behind him, 'the common's just at the top'. Up and up he went, his speed never slackening. When he got to the top there was no pausing for a moment's rest, nor was he in the slightest out of breath. He strode straight ahead and at once began using his net. 'Come on', he called, waving me on. I sat down to recover my breath, and he disappeared in the distance, walking smartly".

His staunch Conservatism was so shaken by the Critchel Down Scandal that he refused to vote for his candidate in 1955. Collier writes, "I tried to persuade him to come to the poll, but he was adamant and one of his last remarks to me was, 'Well, you'll need an ambulance or a hearse to get me to the poll now'."

C.R.'s last letter to me was written on 19th March 1955, and after outlining his plans for the year, he added, "I did my best to commit suicide last summer by getting extremely hot walking about the Downs and then sitting still with a wintry wind cooling me off".

The next news I had was from Alan Collier, saying that C.R. was unconscious and unlikely to pull through. Knowing that C.R. was always just as pleased with his friends' successes as with his own, Collier had hurried over to show him a perfect gynandromorph of *A. euphrosyne* which he had just taken; he found him in bed and unconscious.

Up to the early part of May 1955, Castle Russell had been full of plans for the coming season, but was suddenly taken very ill about the 20th May.

When Dr. Kettlewell left Cranleigh, Dr. Cameron had replaced

him as Medical Adviser, but Kettlewell was able to come down to see his old friend some four days before his death. He was told that he was unconscious, but went up to see him. I quote (by permission) Kettlewell's own words:—"Lastly I must tell you how I was present shortly before he died. As a doctor, I have seen many people pass on, but this was a truly remarkable last meeting. I was told that he had been unconscious for many hours, but I did want to see the old man once again. I went over to the bed and spoke quietly to him and to my amazement he opened his eyes, recognised me, and slowly sat up and talked to me for about five minutes. He was perfectly lucid, and in those few moments told me that he was about to die and that death was not nearly so unpleasant as he had anticipated. He had no regrets and stated what a wonderful life he had had.

"I came out of the room completely staggered by the braveness with which he was facing death".

So passed away, peacefully, bravely and happily—as he had lived—one of our greatest field entomologists, and it is as this that he should be remembered.

In my humble opinion, he ranks with A. B. Farn in his knowledge of all stages of butterflies and their food plants, but even above Farn as a man, since he never lost a friend or made an enemy.

I owe many thanks to the courtesy and co-operation of Mrs. Byng, Mr. A. W. Richards, The Bursar of Eton College and the Institute of Electrical Engineers for supplying details of his early life, and to P. B. M. Allan, V. A. Burkhardt, A. E. Collier, Dr. B. Kettlewell, C. G. Lipscomb, Rev. J. H. Marcon, and A. L. Ransome for letters and reminiscences of Castle Russell.

S. H. K.

## Lathkill Dale, Derbyshire: An Introduction to its *Dipterous Fauna*

By P. SKIDMORE

(Continued from page 76)

### SCHIZOPHORA

#### Acalypterae

*Pyrophaena granditarsa* Forst. Fairly abundant in the damper parts of the dale during the summer.

#### Conopidae

*Conops quadri-fasciata* Deg. A few specimens taken on flowers of Hemp Agrimony on 29.8.56. P.S.

#### Otitidae

*Otites guttata* Mg. Occurs by the weir in small numbers, where one finds the flies resting on the trunks of trees normally about two or three feet from the ground. All I have found have been resting on the shaded side of the trunk. Flight period very short, usually in late May or in early June. P.S.

#### Pallopteridae

*Palloptera saltuum* L. Frequent by the river in shaded places.

### Dryomyzidae

*Neuroctena anilis* Fallén. Often abundant on decaying fungi in late summer.

### Sciomyzidae

*Phaeomyia fuscipennis* Mg. A common species in the wood; found by sweeping *Mercurialis* in June and July. Also taken end of August by L.N.K.

*Sciomyza albocostata* Fallén. Common on beds of stinging nettle in June and July.

*Sciomyza dubia* Fallén. Often numerous on grassy slopes. June-September.

*Ditaenia cinerella* Fallén. Common. As previous species.

*Renocera strobli* Hendel. 2 ♂♂, 31.7.55. Taken near the ford. P.S.

*Tetanocera laevifrons* Lw. Apparently not common in the dale. 1 ♀, 27.6.53. P.S.

*T. elata* F. (*sensu* Séguéy). A common species in thick vegetation throughout the dale.

*T. nigricosta* Rond. (*sensu* Séguéy). Probably another frequent species. First recognised by Mr. L. N. Kidd, who took a male on one of our trips to the dale, 29.5.1955. When he told me of this capture I looked through my specimens of the previous species and found that I had 1 ♂ of the present species dated 27.6.53. We have both taken it since in the same place—but only singly. All the specimens from below Mandale Rake.

*T. robusta* Lw. (*sensu* Séguéy). Not very common. Several very large specimens taken in June 1955, and one in June 1956. P.S.

*Trypetoptera punctulata* Scopoli. Not uncommon, by sweeping thick vegetation in June and July. P.S.

*Dichaetophora obliterated* F. One male, 29.8.1956. P.S.

*Hydromia dorsalis* F. Not a common species in the dale. One male, 31.7.1955. Swept from tall grasses near the weir. P.S.

*Limnia fumigata* Scop. Fairly numerous below Mandale Rake in June and July. P.S.

### Clusiidae

*Clusiodes* (*Clusiodes*) *albimana* Mg. 22.6.1953. L.N.K.

### Helomyzidae

*Helomyza variegata* Lw. One specimen from Lathkill Dale without date, 1952. P.S.

*H. ustulata* Mg. One male, Mandale Rake, 23.8.1956. P.S.

*Leria serrata* L. A few specimens taken in a small cave opposite Low Wood, August 1952. P.S.

### Sphaeroceridae

*Crumomyia nigra* Mg. Swarm on dung, 12.6.1955. L.N.K.

## CALYPTERAE

### Cordiluridae

*Scopeuma maculipes* Zett. Abundant on waterside vegetation in summer. P.S.

#### Larvaevoridae

*Phyllomyia volvulus* F. A very striking fly. Found in numbers on the flowers of Umbelliferae, where they were running about and fanning their wings in a manner reminiscent of a Trypetid. Only taken so far in the one place—below Mandale Rake, 23.8.1956. P.S.

#### Calliphoridae

*Melinda caerulea* Mg. Fairly numerous on the foliage of the trees, in August. P.S.

#### Muscidae

*Orthellia caesarion* Mg. Abundant on the flowers of Hemp Agrimony, 23.8.1956. P.S.

*Helina impuncta* Flin. 12.6.1955. L.N.K.

N.B.—It should be borne in mind that this list is merely a sample collection of species and is not a truly representative collection.

#### ERRATA

p. 73, line 19, *after* flowering *add* plants.

p. 74, line 9, *for* 20 *read* 2 males.

p. 74, line 12, *for* A.I *read* (A.).

p. 74, line 34, *for* De *read* de.

## Notes on Microlepidoptera

By H. C. HUGGINS, F.R.E.S.

*Hapalia fulvalis* Hubn. I wonder if this moth is still settled in Britain; I have heard no records of its capture for many years now. In the winter of 1932 I identified several specimens for my friend Capt. Cyril Diver, who had been taking it for a year or so in the Parkstone area. In the summer of that year he, the late Sir John Fryer, and myself found it literally in hundreds in gardens in the district. The larva apparently fed on cultivated species of *Salvia*, on one of which Fryer reared it from the egg. I have never looked for it again but see no reason why it should not still survive, unless garden neglect in war-time wiped it out. It is on the wing from the beginning of July to the second week in August; as it has a long emergence period the best date would be the third week of July.

*Polychrosis littoralis* Westw. Any collectors visiting Cork or Kerry in June should look out for this moth on the thrift growing on the rocks. In 1952 I found a large number flitting over this plant on a rocky islet in Bantry Bay near Adrigole, on the Glengarriff-Castletown road. Their colour was nearly uniform brown, with a slightly darker band; I saw none of the brightly variegated specimens which are the commoner form in England, so I kept a couple. When I compared them with those in my collection I found that they were half as big again as any others I had; but unfortunately I have not visited that part of

Ireland since. I think this might prove to be a good subspecies. I find it impossible to judge sizes without specimens for comparison.

*Crociosema plebeiana* Zell. A search for this moth on the south coast should produce it from a good many places. In my opinion it should occur anywhere between the Isle of Wight and the Scillies, where the tree mallow is common. My choice of these limits is that for practical purposes they are those of *Leucania l-album* Linn. and *Laspeyresia gemmiferana* Treits. which I suspect to be of a similar distribution. The larva is easy enough to find in the green seed-vessels of the tree mallow; it makes a hole entering and another emerging to pupate in rubbish; a random collection of seed-vessels from a plant where one larva has been detected should be quite sufficient, and the larvae can easily be brought through in a tin with moss at the bottom. The moth has apparently a long emergence period and I should say that any time in June, or from mid-August to September would produce full fed larvae.

## Notes on the Tineina

By S. WAKELY

June.—During the first week of the month the larvae of *Paltodora cystisella* Curt. can be found in the stems of bracken. Look for a discoloured frond on the stem, and the red larva is usually to be found feeding in the stem and causing the discolouration. Pupation takes place outside the feeding place among debris. Owing to the quick decomposition of the stem when picked this is not an easy species to rear, but if the larvae are full-fed when taken, rearing is simple. Larvae of *Gelechia hippophaella* Schrank are not uncommon in spun shoots of the Sea Buckthorn around our coasts. Camber, Sussex, is a good locality for this local insect. Spun tips of *Genista tinctoria* can be gathered for *Gelechia lentiginosella*, while spinings among the prickly twigs of *Genista anglica* should be searched to obtain larvae of *Stomopteryx albipalpella* H.-S.

In some places almost every terminal shoot on gorse bushes will be found to be dead and withered. An examination of some of these should produce larvae of *Anarsia spartiella* Schrank, but many of the feeding places will be found to be empty or to contain a sickly parasitized larva. By searching the clumps of marjoram one can sometimes find the folded leaves containing the peculiar zebra-striped larvae of *Telephila schmidiella* Heyd., a species not uncommon in the Boxhill district. The webs of *Dichomeris marginella* F. are to be found among the needles of Junipers. This local and pretty species is often common on the downs at Betchworth and Riddlesdown, Surrey.

Imagines of the brightly coloured *Chrysoclista linneella* Clerck can be found towards the end of the month on the trunks of lime trees. It is particularly common in London and the suburbs, and dozens can often be seen together, making little movements with their whitish antennae which are waved about in a characteristic manner. Another species out at the same time is *Cosmopteryx eximia* Haw. It occurs on wild hops in hedgerows and the moths can be found by beating the leaves over a beating tray. It is a tiny species of exquisite colouration.

In the Herne Hill and Dulwich district of London imagines of *Blastobasis decolorella* Wo. can be taken on oak fences round gardens. The first British specimens were found here by me in 1946 and others have been found there every year since then. It has also been reported from Kent and Essex in recent years. There are two broods—one in June and the other in September.

Larvae of several species of *Depressaria* can be found this month, some of them very local. This genus is a favourite of mine and the larvae are very easy to rear. A keen eye is required to spot their spinings, but when one gets used to the type of feeding place numbers can often be found. I will mention a few species and their foodplants. *D. chaerophylli* Zell. occurs on the flowers (and seeds) of *Chaerophyllum temulum*, and the bright green larva with black longitudinal markings lives in a slight web spun across the umbels. It occurs in lanes near London, and I have seen it in abundance in Dorset near Studland. *D. weirella* Stt. can be taken on *Anthriscus sylvestris* (Hedge Parsley) near the Thames marshes in Essex (Stanford-le-Hope, etc.). *D. douglasella* Stt. occurs on *Daucus carota* and *Peucedanum sativum*. *D. umbellana* Steph. larvae can be found on gorse, living in a funnel-shaped web which is rather conspicuous. The local *D. pallorella* Zell. feeds in spun leaves of *Centaurea scabiosa* and is not uncommon near Studland, Dorset. *D. nanatella* feeds on the leaves of *Carlina vulgaris* which are spun together for the whole length of the leaf, the larva inhabiting the tube thus formed. This species requires earth in which to pupate. In the Faversham district of Kent larvae of *D. putridella* are common on the very local *Peucedanum officinale*. The foliage of this plant is somewhat like asparagus to look at, and the spinings of the larvae are quite conspicuous. This species suffers severely from attacks by parasites, but in spite of this occurs in plenty. It is advisable to examine the spinings for healthy larvae or it will be found that one has quantities of parasites. *A. ciliella* Stt. feeds in the folded edges of the leaves of *Angelica officinalis* and is not uncommon at Bookham, Surrey.

At Boxhill and Ranmore in Surrey the larvae of *Zelleria hepariella* Stt. can be found at the end of the month feeding under a slight web on the top surfaces of ash leaves. I have often found the larvae by examining the leaves of young ash trees about ten or twelve feet high. The larvae frequent the leaves at the extreme top of these young trees, which have to be pulled down for examination. This species is discoloured if killed by ammonia. Another species to be found in this area is *Hyponomeuta plumbella* Schiff. The larvae occur on spindle bushes, and when very young feed internally on the terminal shoots, causing them to wither. Later they live under a slight web on the undersides of the leaves and can be detected if the branches are bent over to show the undersides. Sometimes they are on the lower branches half hidden in grasses. The conspicuous webs of *H. rorella* Hb. can be found on willow. At Camber, Sussex, and also in Norfolk, I have found the webs on sallow bushes.

The webs of *Scythropia crataegella* L. occur on whitethorn. Occasionally an isolated bush is entirely enveloped by the web. Pupation takes place within the web, when the peculiar pupae can be seen dotted about in the gossamer-like silk. A peculiar effect is caused by the larvae of *Acrocercops bronqnardella* F. These larvae feed gregariously



in oak leaves causing the top surface of the leaf to become detached from the rest of the leaf and appearing as a silver coloured blister covering the upper side of the whole leaf. Seven or eight larvae often feed in one leaf, and are visible if the leaf is held up to the light. The active larvae of *Ypsolophus vitellus* L. can be beaten in numbers from elm, and are easy to rear. One more interesting species might be mentioned, namely *Acrolepia granitella* Treits., the larvae of which feed in large blotches in leaves of *Pulicaria dysenterica*. Larvae are usually found in the light coloured blotches. The brownish blotches usually denote untenanted earlier feeding places.

This is undoubtedly the best month for collecting the larval mines of the Eriocraniidae in birch leaves. One species—*Eriocrania kaltenschachii* Stt.—occurs in leaves of hazel and hornbeam. The leaves should be placed in a pot containing earth into which the larvae retire when full fed. If kept in a shady corner, with the pot sunk into the soil, the imagines should emerge in March of the following year.

In conclusion I should like to advise that specimens should always be mounted not only on stainless steel pins but on the stoutest pins that can be used. Many insects are spoilt by using a much finer gauge of pin than is really required. Stainless steel pins are preferable even for the larger butterflies and moths. I do not think this is generally realised.

## Notes and Observations

A COMMENT ON 'FIELD WORK'.—I was greatly interested in the informative article on Field Work in the January and February issues of the *Record*, particularly with regard to the references to the Littlewood pupa-cage. Like the writer of the article, I had corresponded with Littlewood for a number of years but not with any particular frequency and on occasions when travelling up North I had the pleasure of meeting him and partaking of his hospitality.

My own modifications of his pupa-cage, which I described in an article in the *Bulletin* of the Amateur Entomologist's Society (Vol. 14, pp. 15-16), greatly intrigued Littlewood. For the benefit therefore of those readers who have not ready access to the above *Bulletin*, may I be pardoned if I briefly describe these alterations.

To begin with I used a box with a false bottom, the centre of which was cut out to accommodate a shallow pie dish which was filled with powdered peat kept really damp by regular waterings; the peat will last for years without becoming mouldy, in fact one lot was not discarded until after at least 15 years.

The next problem was to obviate the tedious job of making a number of artificial cocoons, the prospect of which was too much for my blood pressure. I adopted therefore the simple expedient of pinning broad strips of cotton-wool on the bottom of the cage, anointing each pupa ceremoniously on the tip of the abdomen with glue, and gently working it into the wool—facing the side. If pupae were fairly numerous, I usually left a space between each and glued a second row in echelon and so left them with a clear run to the side through the orchestra stalls. This method practically eliminates the risk of seeing

moths floundering all over the box trying vainly to get rid of bits of pupa case.

When I wrote Littlewood about it, he replied: "Your 'brutal' idea of glueing the pupa to the wool is a great flight of imagination. I should never have thought of that. After all the proof of the pudding is in the eating, and if it works, that is everything. There's plenty of room in our hobby for ingenuity, though, as far as my experience goes, very few entomologists display much. They seem content to follow the old ways".

In conclusion, I have followed this method for many years, and failures have been negligible.—L. G. F. WADDINGTON, 9 Greenleaf Avenue, Wheatley Hills, Doncaster, Yorks.

POECILOPSIS LAPPONARIA BOISD. FROM WESTER ROSS.—On 2nd March I was pleased to find a ♀ *Poecilopsis lapponaria* Boisd. in my breeding cage. As this had been bred from one of three larvae obtained in Wester Ross in 1957, there is now no doubt that this species occurs even farther north than, I believe, has previously been recorded. Of the three larvae found (at the end of July 1957) two were feeding on dwarf willow and one on bog myrtle. I hope to find time off from my guest house duties to visit the area in Wester Ross when the species should be on the wing. I shall then be able to report on its scarcity or otherwise.—P. LE MASURIER, Alt na Craig, Aviemore, Inverness-shire. 7.iii.1958.

THE 1957 SEASON IN CAMBRIDGESHIRE.—There is not much of interest to report from the County of Cambridge for 1957. Light attracted far fewer species and individuals than in 1956. The only insects one could consider noteworthy were as follows: 16th June, *Eupithecia dodoneata*; 17th, *Eumichtis adusta*, of which several more later; 19th, *Apamea unanimitis*; 27th, *Tethea ocellaris* (*octogesima*), melanic. 23rd July, *Spaelotis ravida* (and a few more later); 24th, *Pyrrhia umbra*. 23rd August, *S. ravida* again; and 28th, *Celaena leucostigma*.

Many *Hadena compta* larvae were found for the second year in succession feeding on dark red Sweet William in a cottage garden about a hundred yards from the Rectory, but no moths were seen at light—I did not look for them right on their breeding ground.

With regard to the East Anglian specialties, I found *Lithostege griseata* still in fair numbers, also *Anepia irregularis* larvae. There were no signs of *Scopula rubiginata* or of *Emmelia trabealis* on the few occasions when I looked for them. *Coenoteophria berberata* still exists in spite of the drastic cutting down of its foodplant.

Wicken and Chippenham have had little attention from me this year—they seem out of favour these days—but as far as my experience goes, so rarely nowadays can one visit these fens and find a warm night on arrival, when insects will fly freely. Is there anything so desolate, entomologically speaking, as a fen by day or on a cold night, or even a warm misty one?—REV. G. A. FORD, Balsham Rectory, Balsham, Cambs. 10.iii.58.

EARLY IMMIGRANTS.—Since writing to you last, a visitor who came on Saturday, 10th May, told me that he had taken a *Celerio livornica*

Esp. in his moth trap at Woking on the morning of the 9th May. He said he thought that an immigration might be taking place, and this would seem to be confirmed by the fact that on Sunday evening, 11th May, I took a nice fresh male *Heliothis peltigera* Schiff. flying in a window of a friend's house at Clarendon. My friend told me that he had seen it the previous evening but was unable to catch it.—C. M. R. PITMAN, Malvern, Southampton Road, Clarendon, Salisbury. 12.v.58.

VANESSA CARDUI L. IN SURREY.—On a short walk in the Tadworth area today I saw a specimen of *Vanessa cardui* L. which displayed itself on the bare ground of a footpath.—W. J. FINNIGAN, 87 Wickham Avenue, Cheam, Surrey. 11.v.1958.

SCOTTISH VARIETIES IN BUCKS.—When some twenty years ago I was running a moth trap, I took some Scottish varieties of moths in it. I asked the then forester whether he had ever had seed or young conifers from near Rannoch, and he replied: "We have always grown our own from local seed". Later on, he told me that the estate (the Duke of Bedford) had had some young trees from Scotland, but as this was before his time he had not known of the occurrence when he gave me the above information.

On 17th and 22nd April I took at our sitting-room window two *Cerastis rubricosa* Schiff.; one was the typical form, and the other I at first thought was just a local melanic, but on comparing it with a series of Scottish *rubricosa* (bred by Alfred Hedges), of which I have 8 or 9, it is undoubtedly the Rannoch ab. *mucida*: a bit far from barracks?—SIDNEY H. KERSHAW, Alderman's Place, Aspley Heath, Bletchley, Bucks. 24.iv.1958.

EARLY EMERGENCES AT WESTON-SUPER-MARE.—In this generally backward spring, it may be of interest to record a few early appearances of moths in my moth trap in this garden: February 15, *Triphaena pronuba* L., *Agrotis ypsilon* Rott. and *Nomophila noctuella* Schiff. and March 1, *Hadena bicruris* Hufn.—C. S. H. BLATHWAYT, "Amalfi", 27 South Road, Weston-super-Mare. 1.v.58.

SOME FLIES BRED FROM DECAYING VEGETATION IN LONDON.—The remains of some nasturtiums, removed from window boxes in Forest Hill, S.E.23, were left to decay in a bucket on a balcony about fifteen feet above the ground. The bucket became filled partially with rainwater, and, when it was examined in September, 1955, larvae of *Fannia* and *Psychoda* were very abundant, and *Drosophila* puparia were also present. Some of the decaying material was placed in a screw-topped jar and, by September 15th, *Drosophila funebris* Fab. (det. V. R. Demerec) had emerged, as well as three species of *Psychoda*—*P. cinerea* Banks, *P. severini parthenogenetica* Tonnoir and *P. alternata* Say. The first species, *P. cinerea*, had been bred from decaying apricots on a previous occasion in this locality (1955, *Ent. Rec.*, 67: 70); *P. alternata* is a well-known sewage works fly, which breeds in filter beds and other places; and *P. severini* has been found breeding in a variety of decaying materials (see Satchell, 1947, *Parasitology*, 38: 51). A fourth species of *Psychoda*, *P. spreata* Tonnoir, emerged in October,

with adults of *Fannia canicularis* L. Satchell, 1947, has recorded *P. spreta* as breeding in jars of rotting grass cuttings. Of the four *Psychoda* species, *P. alternata* was the commonest, and 19 ♂♂, 24 ♀♀ emerged in September and October, compared with 16 ♀♀ of *P. severini*, 5 ♂♂, 3 ♀♀ of *P. cinerea*, and 2 ♀♀ *P. spreta*. *P. severini*, which is parthenogenetic, continued to breed in the material in the jar, and adults were produced throughout November to early December, and also in April of the following year, 1956.

The *Fannia* puparia were parasitised by an Ichneumonid, *Stilpnus gagates* Grav. (det. J. F. Perkins), a small number of puparia producing 9 ♂♂, 2 ♀♀ of *Fannia* and ten *Stilpnus*.

*Psychoda* adults are frequently found indoors in London, especially in bathrooms, and *Fannia canicularis* is probably the commonest housefly. Another common household fly, not bred on this occasion, is *Sciara*, which is able to breed in the soil of potted plants kept indoors, but a complete survey of the domestic flies of London has, rather surprisingly, not been undertaken recently,—B. R. LAURENCE, 4 Princes Garth, London Road, S.E.23.

## Current Literature

O. W. Richards. Hymenoptera: introduction and keys to families. HANDBOOKS FOR THE IDENTIFICATION OF BRITISH INSECTS, 6 (1), 94 pp., 219 figs. Royal Entomological Society: London (1956). Price 20/-.

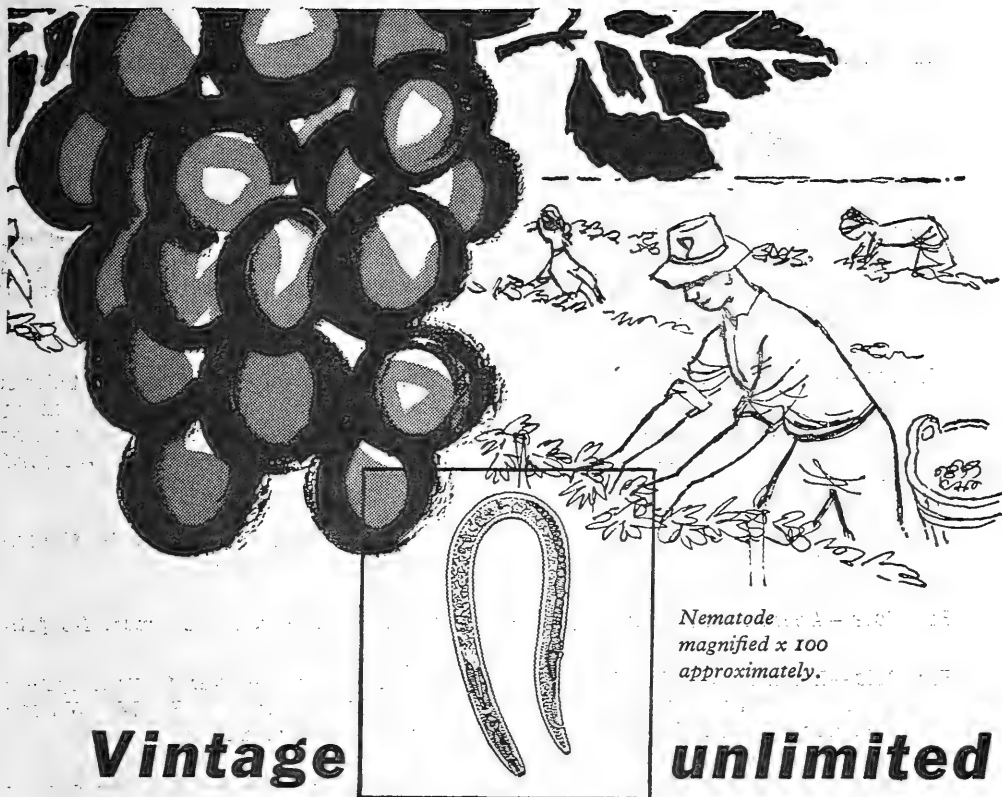
The appearance of Kloet and Hincks' classic *Check List* encouraged a lot of work on the British list; it revealed the terrible state of affairs in the Walker groups within the Parasitica but gave us the first modern lists for almost every family: since then, the works of others have provided good accounts of many groups within the Hymenoptera but we are still some way from getting a definitive list of the British forms. However, the latest part of the R.E.S. *Handbooks* will undoubtedly prove to be the most useful guide to the study and collection of Hymenoptera that has yet appeared in Britain.

Professor Richards gives a complete and well illustrated account of the external structure of Hymenoptera. Ross's nomenclature is used for wing venation, an improvement on previous schemes. Of particular interest is the stress placed on spiracle number in the abdomen: this character is one which always evolves within an order by reduction—usually in association with reduction in body size. The homologies of the male genital claspers are—in Richards' view—still uncertain but there is little doubt that a few more years will see this problem solved.

Another feature of the work is an excellent summary of much hitherto scattered biological detail and life histories, the prey of wasps and parasite-host relationships are among the topics discussed.

Finally, there are the keys to family. These are not easy to use but that is the fault of the insects, not of the author. All terms used in the keys can be found in the index, which refers back to the definitions in the morphology section: this makes the keys as simple as possible. The 22 fine figures of whole insects will undoubtedly assist the novice considerably. In short, this book is essential to anyone interested in collecting wasps, bees and other Hymenoptera and contains much of value to all entomologists.

D L.



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*Cambridgeshire Lepidoptera*.—Records wanted for new County list in preparation. Butterflies, Pyralids and all Chippenham fen records particularly wanted. Full acknowledgment will be given.—*Brian O. C. Gardiner, 43 Woodlark Road, Cambridge.*

*Wanted*.—An examination of the Coleoptera section of the General Science Museum at Merchant's Taylors School shows that there are a great many gaps in it. Can any Coleopterist readers of the *Record* assist by sending some of their duplicates?—*G. Lucas, 17 Munden Grove, North Watford, Hertfordshire.*

*For Sale*.—Light trap, 22 yards flex, choke, two lamps, connection to electric supply. £7.—*E. Harrison, 53 Borrowdale Road, Lancaster.*

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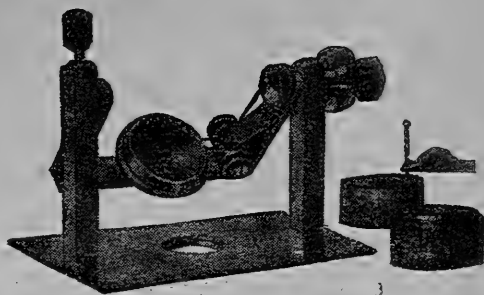
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# Biological Notes on *Aricia agestis* (Schiff.) in Britain

## Part II.

(Continued from page 148)

By F. V. L. JARVIS, B.Sc., F.R.E.S.

### Comparison of early stages between Southern *agestis*, ssp. *artaxerxes* and Durham *agestis*

Nearly a century ago Professor Zeller published in the *Entomologist's Monthly Magazine*, No. 40, a detailed account of the final larval stage of Southern *agestis* and in the same periodical (No. 55) W. Buckler gave an equally meticulous description of the larva of ssp. *artaxerxes*. From reading both articles in comparison with my own results, which agree in every respect with the early accounts, it is clear that there is a constant difference between the two forms. In relation to *agestis* from the N.E. Coast, Buckler describes five larvae sent to him by J. E. Robson from Hartlepool (Buckler's *British Butterflies*, Vol. 1) and concludes "on comparing them with the figures I had taken of larvae of *artaxerxes* in 1868 I found them to be in every respect precisely alike". Finally, in comparison of Southern *agestis* with *artaxerxes* he states: "all I can say of the type form (southern) is that the green colour is more lively and full and the pink along the lateral region is darker, inclining to purplish".

This apparently is how the position has stood ever since; the larva of *artaxerxes* has been merely regarded as a pale form. In many species larval colour can be variable and therefore of little value in classification but in *agestis* the colour group of the southern form is distinctive in all instars from that of *artaxerxes*. The larvae of Durham coastal *agestis* are inclined to vary somewhat but the main trend is towards *artaxerxes*. From what little material was available from the inland Durham race these would appear to occupy more nearly an intermediate position between South and North.

To save space I have made the descriptions as brief as possible, but reference to the plates (IV and V) should make the picture clear. The larval head is black or blackish brown in all instars in all forms. The lighter tones are in *artaxerxes*.

#### Egg

Several hundred ova from the various races were examined microscopically and measured. There was no significant difference in dimensions that could not be accounted for by individual variation.

Average diameter, 0.65 mm.; depth, 0.33 mm.

The eggs are deposited singly on the upper leaves and stems of the food plants. They are white, circular and flattened with translucent micropyle. The surface is decorated with a pattern formed by about eighteen right and left-handed whorls, from the intersections of which arise small papillae. In *artaxerxes* the papillae were slightly longer than in southern *agestis*.

#### *Southern agestis*

##### Instar I

Clear green with a row of blackish tubercles on each side of the darker

##### *artaxerxes*

Very pale green. Brown tubercles. White setae. Faint dorsal line. Thor-

##### Coastal Durham

##### *agestis*

Pale green, some as pale as *artaxerxes*.

<p><i>Southern agestis</i> (cont.)</p> <p>dorsal line. Tubercles bear curved setae, dark grey on dorsum and grey on sides. Thoracic legs brown.</p>	<p><i>artaxerxes</i> (cont.)</p> <p>acic legs light brown.</p>	<p><i>Durham agestis</i> (cont.)</p> <p>Brown tubercles. White setae. Well - defined dorsal line. (There are two types of larvae, one paler than the other.)</p>
<p><i>Instar II</i></p> <p>Grey-green with purplish dorsal line and sub-spiracular ridge. Brown or grey brown tubercles bearing brown setae of various tones.</p>	<p>Whitish green with slightly darker dorsal line and sub-spiracular band. Colourless tubercles bearing whitish setae.</p>	<p>Dull grey-green or pale grey-green with slightly darker dorsal line. Some larvae showed traces of purplish in sub - spiracular band. Tubercles brown with whitish or grey setae. Larvae fall into two main groups of colouring.</p>
<p><i>Diapause colouring</i></p> <p>Dull green shaded with brown. Dull purple dorsal line and spiracular zone.</p>	<p><i>Diapause colouring</i></p> <p>Pale green shaded with light brown. Slightly darker dorsal line. No trace of purple.</p>	<p><i>Diapause colouring</i></p> <p>Pale olive green with brown shading. Some larvae showed traces of light purple-brown in dorsal line and spiracular zone.</p>
<p><i>Instar III</i></p> <p><i>Southern agestis</i></p> <p>Grey-green with darker dorsal line. Traces of darker lateral chevrons. Dark brown dorsal line and pink or purplish spiracular zone. Tubercles brown. Dark brown setae.</p>	<p><i>artaxerxes</i></p> <p>Whitish - green with slightly darker dorsal line. No pink or purple shading. Tubercles light brown or colourless. Setae light brown.</p>	<p><i>Durham agestis</i></p> <p>Light green, brighter than in <i>Southern agestis</i> or <i>artaxerxes</i>. Darker dorsal line. A few larvae showed traces of purplish in spiracular zone. Tubercles brown with greyish setae.</p>
<p><i>Diapause colouring</i></p> <p>Similar to Instar II.</p>	<p>Similar to Instar II.</p>	<p>Similar to Instar II.</p>
<p><i>Instar IV</i></p> <p>Bright green with deep brown dorsal line. Wide rose purple spiracular zone. Deeper green chevrons on segments 1 to 10. Body covered with light brown setae.</p>	<p>Pale yellow green with paler lateral chevrons. Slightly darker dorsal line but no trace of purple in spiracular zone. Body covered with whitish setae.</p>	<p>All larvae died after diapause. No data available for later stages.</p>
<p><i>Instar V</i></p> <p>Pea-green on upper surface, becoming paler beneath. Prominent purple brown dorsal line. Broad purplish crimson sub-spiracular band, paler in centre. Two paler green oblique chevrons, most distinct on</p>	<p>Pale green. Light buff on lower surface. Light brown dorsal line. Light pink or pink-brown sub-spiracular band, whitish in centre. Well-defined pale green lateral chevrons. Thoracic legs pale brown. Pattern of white tuber-</p>	

posterior segments. Thoracic legs greyish brown, blotched with black. Pattern of pale brown tubercles carrying long greyish setae with admixture of blackish setae in some larvae. At maturity the green colour deepens.

#### *Pupa*

Usual *Lycaenid* rigid form loosely attached by two strands of silk in thoracic region to dry leaves or muslin sleeve. Pupa rests on a silk mat.

Head, legs, and wing sheaths dull olive or greyish brown. Thorax brown-olive. Abdomen light yellow brown. Wide rose-coloured sub-spiracular band divided by a paler zone. Deep purple brown dorsal line. The eye is dusky and heavily shaded anteriorly with black. Fine, short pale brown setae on head and dorsum. Colour becomes duller after three days. Summer pupae were somewhat paler.

cles covers body. Long whitish setae. At maturity the larvae become a clear light green.

Head, legs and wing sheaths pale lime green or pale grey green. Thorax pale olive yellow. Abdomen very pale brown with faint brown-pink sub-spiracular band. Thin brown dorsal line. A curved black line outlines the eyes anteriorly. Minute whitish setae cover the head and dorsum. As with *agestis* the colour becomes duller after three days.

Specimens of empty pupae were retained for future examination.

Larvae from Winchester and Royston (southern *agestis*) which fed continuously to give August/September emergence were somewhat paler in all instars than the overwintering larvae from the same areas. In the final instar the ground colour was bright pea-green with well-defined chevrons on all the segments. The sub-spiracular band was narrower than in the spring larvae with a paler centre but it was still the characteristic purple-pink. Dorsal line was dark brown. The thoracic legs were light brown, unspotted with black. However, the palest of these larvae was still much deeper in colour than *artaxerxes*. In *artaxerxes* the sub-spiracular band is always narrow and a clear pink or pinkish brown. In no case was there any trace of purple. The body colour is definitely paler in *artaxerxes*.

#### ADDITIONAL FOOD PLANTS

All the text books give two food plants only for the British races of *A. agestis*; *Helianthemum vulgare* (rock rose) and *Erodium cicutarium* (stork's bill) but in the South of England the somewhat localised distribution of these two plants does not appear always to agree with the occurrence of *A. agestis*. *H. vulgare* is essentially con-

finned to chalk, limestone or gravelly soils, whilst *E. cicutarium* confines itself to very sandy situations, such as sand dunes or beds. Near Arundel in August, 1957, I found a few *agestis* flying near a footpath leading to the Downs but could find no rock rose within a mile. Stork's bill is completely absent from the area, but beside the path were a few plants of *Geranium molle* (dove's foot cranesbill). On Salcombe Hill at Sidmouth I took *agestis* close to the same plant and again a thorough search produced neither rock rose nor stork's bill.

As I had a number of *agestis* larvae feeding on rock rose I decided to try them out on the following annual *Geraniaceae*:

*G. Robertianum* (Herb Robert)

Larvae from Winchester and Royston in Instars III, IV and V fed sparingly but deserted herb robert when *G. molle* was offered. One Instar II larva from Blackhall (Co. Durham) made a tentative effort but did not settle to feed.

*G. molle*

Both southern and Durham larvae fed freely on this plant even in the presence of rock rose.

*G. pulsillum* (small-flowered cranesbill)

Southern *agestis* fed freely.

---

EXPLANATION OF PLATE IV.

ARICIA AGESTIS ARTAXERXES

ARICIA AGESTIS AGESTIS

1. *A. agestis agestis*. Egg; lateral view,  $\times 40$ .
  2. *A. agestis agestis*. Lateral papillae of Egg,  $\times 70$ .
  3. *A. agestis artaxerxes*. Lateral papillae of Egg,  $\times 70$ .
  4. *A. agestis artaxerxes*. Larva; Instar I,  $\times 25$ .
  5. *A. agestis artaxerxes*. Larva; Instar II,  $\times 18$ .
  6. *A. agestis artaxerxes*. Larva; Instar III,  $\times 15$ .
  7. *A. agestis artaxerxes*. Instar IV,  $\times 6$ .
  8. *A. agestis agestis*. Larva; Instar I,  $\times 25$ .
  9. *A. agestis agestis*. Larva; Instar II,  $\times 20$ .
  10. *A. agestis agestis*. Larva; Instar III,  $\times 15$ .
  11. *A. agestis agestis*. Larva; Instar IV,  $\times 6$ .
- 

*G. rotundifolium*

Southern *agestis* larvae fed freely. The Durham larvae refused to feed on the latter two plants but as they were already slowing their metabolism preparatory to diapause the results seemed inconclusive.

In a further test a Royston female was placed in a large flower pot with leaves of *G. Robertianum*, *G. molle*, *G. pulsillum*, *H. vulgare* and *E. cicutarium*. After three days the egg count gave the following result:

Eggs laid on <i>G. Robertianum</i>	6
<i>G. molle</i>	16
<i>G. pulsillum</i>	7
<i>H. vulgare</i>	18
<i>E. cicutarium</i>	13

All the larvae hatched in 12-15 days. All grew normally except those on *G. Robertianum*. These larvae wandered ceaselessly over the leaves, nibbling at intervals, but made no appreciable growth and all died in

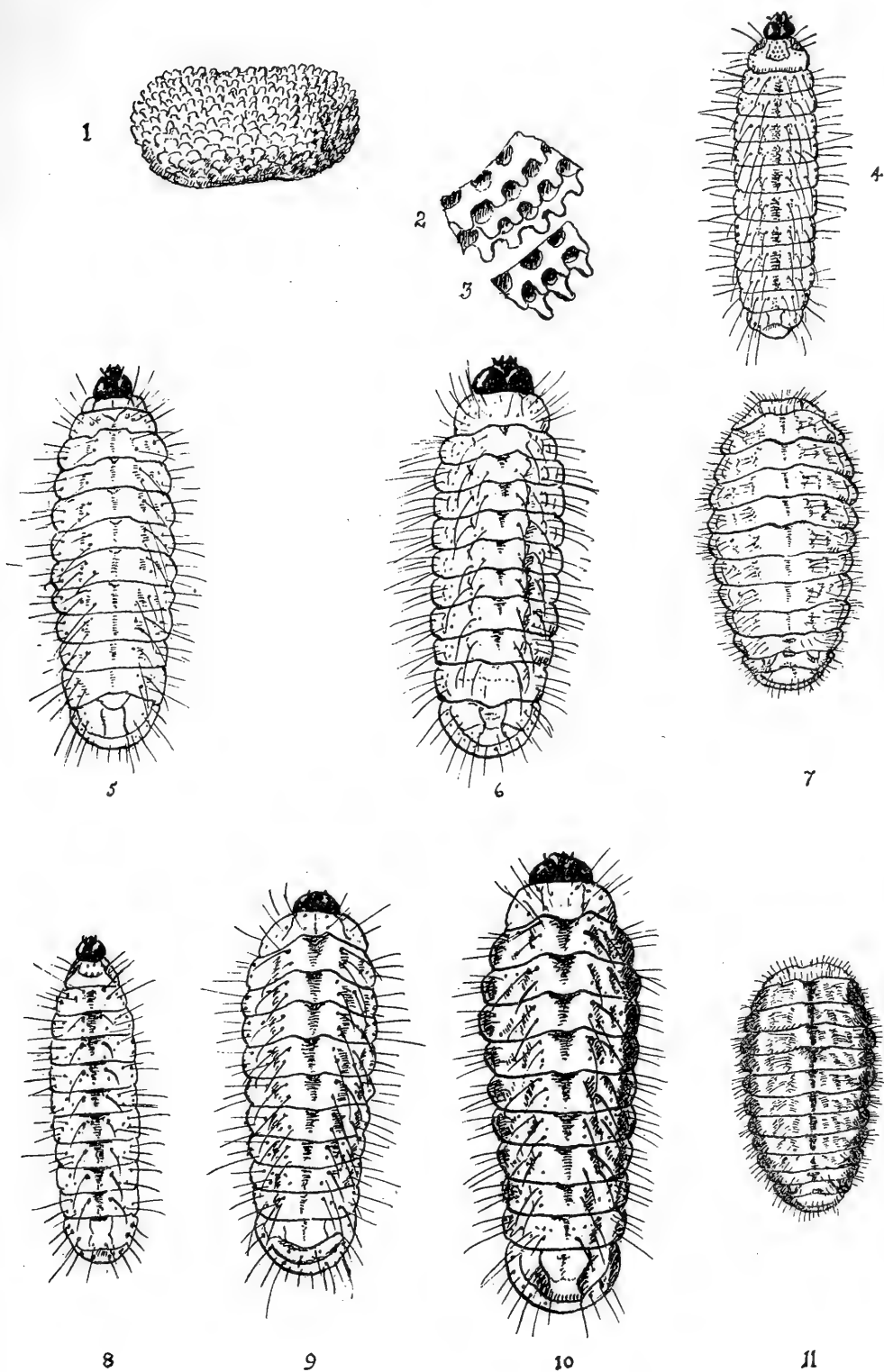
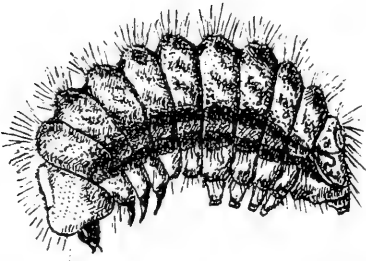


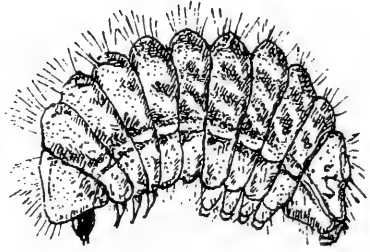
PLATE IV.

ARICIA AGESTIS AGESTIS  
ARICIA AGESTIS ARTAXERXES

1



2



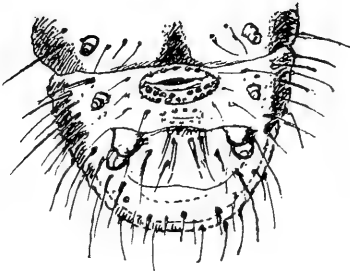
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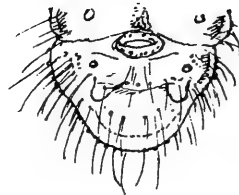
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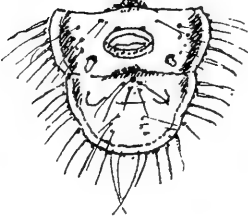
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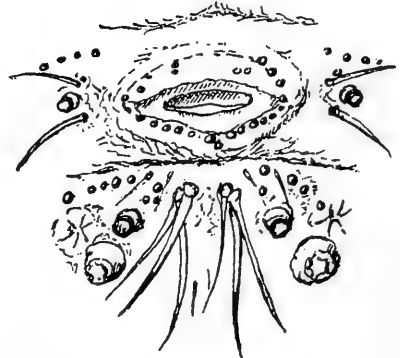
6



8



7



## PLATE V.

ARICIA AGESTIS AGESTIS  
ARICIA AGESTIS ARTAXERXES



a few days. Evidently herb robert cannot be regarded as a natural foodplant.

Another Royston female laid about 40 eggs on *G. molle*. All larvae grew well. Twenty-nine went into diapause in Instars III and IV: one male emerged in November; the remaining ten larvae died prior to diapause, but the surviving larvae and the imago were as normal as the controls reared on rock rose.

Judging from the satisfactory results with larvae in captivity it seems possible that three of these annual cranesbills may well be occasional natural food plants in the South of England. They are widely distributed. Growing on a variety of soils they could well be the stepping stones for *agestis* across wide areas devoid of rock rose. This butterfly does not fly far from its larval feeding site; neither is it inclined to be on the wing in strong wind. Its distribution would be considerably hampered without facilities for raising further generations at fairly short distances. These remarks refer only to the South because there was insufficient material in 1957 to make further tests with the northern larvae. In Durham and Scotland the insect appears to be more colonial than in the South so possibly rock rose

#### EXPLANATION OF PLATE V.

##### ARICIA AGESTIS AGESTIS

##### ARICIA AGESTIS ARTAXERXES

1. *A. agestis agestis*. Larva Instar V; lateral view,  $\times 5$ .
2. *A. agestis artaxerxes*. Larva Instar V; lateral view,  $\times 5$ .
3. *A. agestis agestis*. Pupa; lateral view,  $\times 5$ .
4. *A. agestis artaxerxes*. Pupa; lateral view,  $\times 5$ .
5. *A. agestis agestis*. Honey gland on 10th segment, Instar V,  $\times 12$ .
6. *A. agestis artaxerxes*. Honey gland on 10th segment, Instar IV,  $\times 12$ .
7. *A. agestis artaxerxes*. Honey gland, Instar IV,  $\times 12$  (drawn from dead larva).
8. *A. agestis agestis*. Honey gland on 10th segment. Instar III,  $\times 15$ .

is the only food plant for the univoltine races. Stork's bill is extremely local in Co. Durham and presumably not to be considered as an important substitute.

*Geranium molle* produces seed from July onwards. Being an annual the plant dies in the autumn but seedlings with the characteristic flattened rosettes of leaves are usually found near the parent plant. The rosettes increase in size during the following spring and develop flowering stems in the summer. The larvae feed on the under surface of the leaves until diapause but some of the larger ones descend to the root and eat the growing points of the seedlings. During diapause larvae are either in the crown of the plant or in the grass and surrounding leaf debris. In the spring feeding recommences on the lower leaves and softer stems; in fact, my larvae preferred the tender stems to the foliage, often boring into the centre of the crown where their colouring blended completely with the purple red basal scales and vivid green leaf points. As the stems of *G. molle* are tinged with red and covered with minute white hairs the larvae are sometimes difficult to find. Young plants of both *G. pusillum* and *G. rotundifolium* possess a similar crimson and green colouration.

#### TEMPERATURE EXPERIMENTS

To determine the actual environment temperatures experienced by *agestis* larvae and pupae a number of readings were taken at Bognor

from late April to August on dense clumps of rock rose growing in the garden in full sunshine. The levels chosen were (a) at the surface of the clump where adult larvae feed, and (b) one inch above ground level approximating to the pupal site.

On dull days temperatures at (a) varied little from the air temperature 4 ft. above the surface, but on sunny days readings by early afternoon ranged from 14° F. in late April to 25° F. in July above the air temperature. The highest readings were on days of continuous sunshine and little wind. Temperatures rose early in the day. For example, on 23rd May at 9 a.m. G.M.T. air temperature with a moderate breeze and clear sky was 59° F.; on the surface of the plant the reading was 71° F.; at pupal level, 56° F.

This means that larvae in the final instar are subjected for periods of several hours on many days to temperatures between 70° F. and 100° F. At night temperature falls to the ground minimum. On balance the mean temperature for the period controls the amount of growth attained in that period, but the natural process appears to be rapid growth during warm days offset by retarding at night.

At the one inch (pupa) level temperatures were more even. At night they remained several degrees above surface minima and in the afternoon of sunny days were slightly below day maxima. No figures are available for the North but it would be safe to assume a drop of the order of five degrees compared with the South of England.

To test the possibility that very cool conditions may favour the action of genes producing the Northern characteristics, a small number of Southern *agestis* larvae and pupae were treated in the following manner:

- (a) Newly formed pupae were kept at 34° F. for periods up to 20 days and were then allowed to develop at 60°–65° F.
- (b) Pupae halfway through development were chilled to 34° F. for 20 days and then returned to 65° F.
- (c) Pupae showing signs of wing development were chilled to 34° F. for 20 days and then emerged at 65° F.
- (d) Adult larvae and the resulting pupae were kept at 50°–55° F. until near emergence and were then warmed to 60°–65° F. for emergence.

In (a), (b) and (c) larvae during instars 4 and 5 were maintained at an average of 60° F. The maximum was not allowed to rise above 65° F., which is well below most natural maxima. Also 34° F. was lower than normal pupal environment temperatures. These experiments were "shock treatment" unlikely to produce permanent alteration in pattern. In the approach to a glaciation the process would have spread over thousands of years, with minor fluctuations, during which time some genes continuously activated could have acquired a degree of dominance over those which function in a higher temperature range.

In group (a) eight pupae were used. All imagines showed reduction in the size of the black pupils on the underside of the hindwings. Four males had elongated black sub-marginal spots on the forewing underside. There were varying degrees of obsolescence on hindwings. Two males possessed a few white scales surrounding the discoidal spot on the upperside forewings. One male was melanic with violet scales

at the wing bases (upper surface), and grey shading into the white underside spots. All undersides were deep grey. Nineteen control pupae reared throughout at 65° F. produced imagines normal in pattern and colour.

Group (b)

Three Royston pupae were tested. The only change was a slight scale thinning. There was no pattern change in imagines.

Group (c)

Three Royston pupae showed no difference from the controls.

Group (d)

Only two pupae from Winchester were available. Both imagines were males and showed a marked *albiannulata* forewing discoidal spot (upper surface): a rare condition in this sex. One was *ab. caeca* on the underside and the other possessed considerable obsolescence.

In groups (a) and (d) orange lunules on the upper surface were reduced in extent (both sexes) in comparison with the control. This resembles the Northern "*allous*" tendency. In addition to this modification all ten of the specimens showed departure from the Southern form in exhibiting obsolescence coupled with a tendency to form white scales around the discoidal spot on the forewing upper surface. I have no field experience of the Royston locality but have examined numbers of *agestis* at Winchester without finding any appreciable departure from normal pattern and colour in either sex. With all the test insects showing the same trends of variation it seems reasonable to suggest that chilling in the final instar and at the commencement of pupation allows certain environment controlled genes to become operative, producing in the Southern *agestis* some of the characteristics of the Northern races.

The last two figures on the plate are males from Co. Durham showing obsolescence which is relatively common in that area. They should be compared with the first six figures. Reduction of orange lunules (figs. 7, 8, 9) is a Northern character as well as the *ab. garretti* markings of 7 and 9. In addition fig. 9 shows a variation I have not seen before. On the upper surface hindwings there is a narrow white flash corresponding to the large white wedge of the underside.

These experiments did not produce anything approaching *artaxerxes*, neither did the few *artaxerxes* raised at 65° F. depart noticeably from the wild insects which confirms that *artaxerxes* is a stable pattern type. There would appear to be still some pattern flexibility between *agestis* from Southern and Northern England, but, as has been described previously, the barrier of voltinism separates them now.

*Artaxerxes*, like the Northern *agestis*, is a univoltine race. It is conceivable that it arose from *albiannulata* and *garretti* forms, which by isolation in very cool conditions during a phase of the Ice Ages allowed the increased tendency to white scaling and black spot reduction to evolve to its present fixed condition.

If it were possible to submit a *garretti* strain to the experimental conditions outlined in this paper some interesting results might be obtained.

As a side issue, the occurrence of obsolescent forms in these tests raises the point whether these and other spot aberrations in the *Lycaenids* are genetic or environmental, or a combination of both factors.

From the integrity of pattern, in all stages, of *artaxerxes* even in Southern conditions, one might speculate how close is this form to the dividing line between "sub-species" and "species".

Plate VI illustrates some of the imagines reared in the temperature experiments with normal types for comparison.

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#### EXPLANATION OF PLATE VI

VI.—To facilitate reproduction of detail, lineal dimensions are shown as life size, plus 10%.

##### First row, reading down.

1. ♂ ex Winchester ova. Final instar and pupa kept at 55° F. April 1957.
2. ♂ ex Winchester ova. Final instar 55°-60° F. Pupa at 34° F. for 20 days after pupation; then at 60° F. until emergence. November 1957.
3. ♂ ex Royston ova. Treatment as No. 2. September 1957.
4. ♂ ex Royston ova. Treatment as No. 2. September 1957.

##### Second row.

1. ♂ ex Royston ova. Treatment as No. 2 first row. September 1957.
2. ♂ ex Royston ova. Final instar 50°-55° F. Pupa at 34° F. for 18 days; then at 55°-60° F. May 1958. This is from an F2 generation. The three Royston ♂♂ are from the F1 generation.
3. ♂ ex Winchester ova. Final instar and pupa kept at 55° F. April 1956.
4. ♂ ex Royston ova. Final instar 50°-55° F.; pupa at 34° F. for 7 days; then at 55°-60° F. May 1958. F2 generation.

##### Third row.

1. ♀ ex Royston ova. Treatment as No. 2 second row. May 1958. F2 generation.
2. ♀ *artaxerxes* ex Hawick ova. Final instar and pupa at 60° F. May 1956.
3. ♂ *artaxerxes* ex Hawick ova. Final instar and pupa at 60° F. April 1956.
4. ♀ *artaxerxes* wild. Hawick, 26th June 1949.

##### Fourth row.

1. ♂ ex Royston ova. Reared outdoors at Bognor. August 1957.
  2. ♀ ex Royston ova. Reared outdoors at Bognor. September 1957.
  3. ♂ Sherburn, Co. Durham, wild. 12th July 1942.
  4. ♂ Blackhall, Co. Durham, wild. July 1938.
- 

#### SUMMARY

It has been shown by rearing in controlled conditions that there is a difference in voltinism between Southern *agestis* and the races from Northern Britain, including ssp. *artaxerxes* from Scotland.

A detailed description of the life stages of the various races illustrates the difference between the larvae of *artaxerxes* and other *agestis* forms in Britain. The question of possible association with ants has been discussed and additional larval food plants have been described.

Larval diapause and growth rates have been defined.

Temperature experiments on larvae and pupae from Southern England suggest the possibility of cool conditions as pattern modifiers in the evolution of the Northern races.

I am much indebted to Mr. J. Firmin and Mr. T. W. Jefferson for the supply of living material and to Mr. G. T. Gaunt for photographing the specimens in the plate.



NOTE:—To preserve detail in reproduction the lineal dimensions in this plate are increased by approximately 20 per cent.



# Notes on Continuous Breeding of *Arctia caja* Linn.

By C. M. R. PITMAN

Continuing with my note on *A. caja* (*Ent. Rec.*, 69: 220), they have provided such fascinating observations with a certain amount of excitement during bleak winter months when amateur entomologists' activities normally consist of gloating over cabinets, renewing acquaintances, making plans for the coming season, plans which invariably go awry, or pottering about with paraphernalia which is seldom used, it occurred to me that these observations, elementary as they are, might be of interest to anyone who would like to try successive breeding with this species in the future.

From these September larvae a series of moths were obtained during October; the first to emerge 2nd October, and then occurring at intervals until 16th October. From a total of 38 emergences which were evenly distributed amongst males and females only four were considered worthy of a place in the cabinet, an assymetrical male, left side normal, right side showing considerable increase in white on the forewing, chocolate markings greatly reduced, hindwing fused with yellow striations and reduced dark markings. Another was extreme *consolidata* ab. nov. Cockayne<sup>(1)</sup>; two others being with confluent markings on all wings were quite nice, the remainder more or less typical examples were divided into three large breeding cages with a view to obtaining pairings if possible in an endeavour to try my luck with another brood.

Watch was kept on the moths each evening and early morning but no pairings were observed; however, each female obliged with ova laid promiscuously about the cages, not on the potted up dandelions provided for the purpose. Eggs were deposited from 10th October to 17th October in varying quantities. It was assumed these would inevitably prove infertile because it was considered that of a normal pairing taken place during night-time, the moths would have remained in copulation until the following morning.

Experience has shown that they have often been found mating during daytime. Actually wild pairings so found frequently remained in copulation all day.

So, failing to see any pairings, it looked as though the lateness of the season with erratically cold nights was not inducive to mating.

Imagine my surprise when on 26th October, after despairing of any fertile ova, some of the eggs were observed to be changing to a greyish colour. These hatched during the night, followed by more each day until 30th October. On this day a small batch of larvae was given to my friend, Dr. H. M. Darlow, F.R.E.S., who suggested he would like to try his luck with some.

It was interesting, perhaps significant, to note that in each batch of ova there was a large number infertile, in some cases over 50%. This was believed to be due to half-hearted attempts at pairing, or perhaps something amiss due to the lack of normal diapause period. Indeed, had this stunted fertility been a solitary instance then, with such lack of evidence that a pairing had actually taken place, one could have been excused for thinking of parthenogenesis, although

<sup>1</sup>Cockayne, *Pro. S. Lon. Ent. Nat. Hist. Soc.*, 1947-48, p. 183.

there appears to be no record of this behaviour in the species mentioned in any of my literature apart from a suggestion by P. B. M. Allan <sup>(2)</sup>. In any case, pairings which must have taken place unobserved could have only been of a very short duration, for although observations were made from early dawn until at least five hours after dusk each day, little activity was noticed apart from feeble display of wing beating or fanning on the part of a couple of males for a very brief spell, or occasionally some egg laying by the lethargic females at about 8 p.m. Not once was a female observed extending her abdomen in the typical calling attitude.

Approximately 500 larvae resulted from the hatch collectively. There seemed no reason to separate them as the parents appeared to be quite typical. They followed after their predecessors by feeding on dandelions, gathered well in advance to ensure a good supply in the event of frosts, which actually occurred with a severe spell in December. For the first week the tiny larvae were confined to four 1 lb. jam jars with muslin tops placed on a shelf above the kitchen fire. As growth demanded moving to more spacious quarters they were transferred to 7 lb. sweet jars, still having the benefit of indoor warmth from the fire, though unfortunately the room temperature dropped considerably during night-time.

By 23rd November all were doing well, but growth was very irregular. The bottom of each jar was covered with a quantity of dry leaves, partly to absorb undue moisture but mainly to facilitate moulting in privacy—a consideration greatly appreciated by the larvae during this delicate and critical process. Some had reached final instars by 26th November and these with the other well-advanced larvae were selected and put into a bigger breeding-cage, 10 inches square, with glass sides, perforated zinc top, and the floor covered with a layer of peat and leaves. This suited them well and also prevented any condensation on the glass. In all, 85 reached their final instar. feeding voraciously during the last week. The first to spin up started operations on 4th December, others following intermittently.

As expected, however, the greater majority, undecided what to do, became very sluggish, refused to eat, and looked as though they were preparing to moult. Eventually after a couple of very cold nights at the beginning of December they decided to hibernate, or at least enter into semi-diapause, although by that time most of them had gone past the more usual hibernating instars, and they definitely refused to be aroused even when subjected to much more consistently warm conditions.

In spite of providing the now restless full-fed larvae with curled-up paper and cosy nooks to pupate in, most of them seemed bent on spinning up in the top angles of the cage, many of them, as usual with this species, on top of each other regardless of all efforts to discourage them. These circumstances necessitated the removal of the cocoons in order to enable the first come first serve rule to operate, a procedure which might well have been responsible for some of the fatal results which followed later on, as many of the pupae were dislodged from the safety of a naturally air-conditioned sealed cocoon.

<sup>2A</sup> *Moth-Hunter's Gossip*, p. 181.



During December the box containing these cocoons and pupae were kept as long as possible near a kitchen fire. Towards the end of the month, my patience beginning to flag, examination of the pupae took place more frequently than was necessary, also on many occasions the cage was placed in front of the fire, hoping to speed up emergences by some extra warmth. Unfortunately, this unwise practice proved disastrous; my impatience earned a just reward of seeing several imagines fully formed but dried up in the pupae during early January, in spite of frequently sprinkling the cocoons with water.

To make matters worse one of these undeveloped moths had complete chocolate forewings with steely black hindwings. My lesson was duly learnt to an extent of 22 pupae; the rest were left on a shelf over the fire and given more frequent dampings.

As the October brood started to appear about a month after pupating it was expected that these would behave in a similar manner, and as time went on it was feared they might have all dried up. However, they were given the tongue test and as they appeared to be very cold it was felt there was still some hope. This was realised on 19th January when a perfect female emerged, var. *consolidata*, and others followed later. Emergences then continued up to the end of January. One heavily marked male which emerged on 24th January was particularly interesting because apart from the bold markings on all wings the hindwings were also peppered heavily with small black dots. Amongst some females was an interesting var. *albomedia* ab. nov. Cockayne<sup>(3)</sup> on 26th January. Eventually some pairs were selected for pairing and put into 6-inch boxes with muslin covers which were moistened daily. Much activity was noticed with the males after dusk when they were seen fussing around the females and obviously trying to copulate, quite in contrast to the earlier individuals, so it seemed pairing was inevitable. Pairs selected consisted of (a) *consolidata* female  $\times$  *consolidata* male, (b) *albomedia* female  $\times$  with a very light male. Three other pairs consisted of more or less typical examples, but there may of course have been homozygotes.

Many batches of ova were obtained from all the females, laying being staggered from 26th January to 2nd February. Many ova were depressed by 4th February and by 12th February it was apparent that all ova laid were infertile. This may of course be due to the fact that the imagines were not provided with suitable quarters or conditions for pairing to take place. Further emergences continued to take place, a dark male 15th February, *albomedia* female 17th February, but still no pairings were obtained. This was indeed difficult to explain because both males and females showed much more activity and more attempts at mating than had been noticed in the earlier brood. It seems possible the boxes used for this purpose were too small.

To me, however, it was interesting and a novelty to possess *caja* in all stages of metamorphosis during January.

Some of the now obviously dead pupae were opened on 4th April and were found to contain complete but undeveloped moths, most of these being typical; but there were some extremely interesting forms that had failed to develop (a) one with uniform brown forewings, al-

<sup>3</sup>Cockayne, *Pro. S. Lon. Ent. Nat. Hist. Soc.*, 1947-48, p. 171.

most black hindwings, (b) uniform cream forewings with brown hindwings, (c) brown forewings with a trace of white, black hindwings with a little red at the base. These with others of interest set as they are will remain a memorial to my faulty handling of the pupae, though it has been suggested these failures to emerge and develop successfully may have been due to a lethal gene; but as there were so many more typical examples that behaved in a similar manner, there seems no doubt that my interference with the pupae, particularly when removing the cocoons from the cage causing some of the pupae to fall out, was a great mistake, although care was exercised when damping the pupae to see no water fell directly upon them. Maybe the room atmosphere was too dry and absorbed moisture from the pupae. Oddly enough one typical moth was still alive when the pupa case had been opened; it crawled on to a growing plant, remained there for a week without any attempt at expanding its wings, and during the time it was there it laid quite a number of eggs.

On 19th January a glass tank containing a healthy growth of dead nettle was brought into the house and the small partially hibernating larvae put into it. By the 20th many were seen on the food-plant and some commenced feeding. By 2nd March nearly all the caterpillars were active and most of the nettle had been devoured, so quantities of dandelion was put into the cage. As time went on this was a daily necessity. The first of these larvae commenced to spin up on 12th April. Many others now in their final instar were removed to separate cages for pupation, and more were noted spinning up at the end of April.

In view of the extraordinary performances and the considerable variation already exhibited in this unorthodox race of *caja* one can hardly wait for further emergences, which look like being staggered for many weeks to come. It is hoped when this occurs pairings will be possible. Fortunately, conditions will be more favourable for mating out of doors under more normal circumstances so that we shall be able to continue breeding with success from selected pairings of the more interesting forms. It has been noticed that many of these larvae when changing their skins seemed to experience great difficulty in casting the old coat, several dying during the attempt, while some others when ecdysis was successful remained quite wet for some time afterwards.

Unfortunately owing to the irregularity of growth with prolonged and staggered moults, there is no data available to record the number of changes that has occurred.

Several larvae after final moults appeared very unusual; instead of the long silvery grey hairs they are smokey black, and are generally of a very much darker appearance, only one row of white tubercular dots being visible. At time of writing, 30th April, all the larvae, 283 in number, are thriving in five large breeding cages, nearly all now in the final instar.

## The Supposed Irish Record of *Lycaena dispar* Haw.

By H. C. HUGGINS, F.R.E.S.

In the *Record*, 70: 151, Mr. Haynes has resurrected the Milltown record of *Lycaena dispar* by Andrews. The original record quoted in

full by Mr. Haynes is about as vague and unsatisfactory as it can be, apart from the recorder. To begin with it is a "seen" one, the year is not mentioned, nor the date. Although we are told that *Bartsia viscosa* was present we are *not* told that *Rumex hydrolapathum* was; the plant is not frequent in Ireland, and as mentioned by Mr. Haynes. Captain Purefoy had to import it from England and specially plant it when introducing *rutilus*. As visitors to Wood Walton know, the dock must be growing under special conditions for *dispar* to flourish, conditions not likely to occur naturally on an Irish bog.

Mr. Haynes mentions that Andrews was the first to record *Gonepteryx rhamni* Linn. as apparently suggestive of his reliability, but he does not mention that Andrews also recorded *Limenitis camilla* Linn. from Tarbert, Co. Kerry, an undoubtedly false record. The scepticism as to the *rhamni* record was due to its author being Andrews; had anyone else recorded the butterfly it would probably have been accepted at once.

Andrews also recorded *Thecla betulae* Linn. from Mucross and Bandon and it is significant that neither Kane nor Donovan in discussing the disputed status of this insect, take the trouble to refer to his records.

Neither Kane, who was inclined to credulity, nor Donovan, who was very much the reverse, took any account of Andrews, and C. G. Barrett, who was for a time his contemporary in Dublin, does not mention this *dispar* business.

My late friends Philip Graves and R. A. Phillips of Cork both knew of Andrews and both considered him worthless as a recorder. Dr. B. P. Beirne, who before he took up his Canadian appointment was Professor of Zoology at T.C.D., re-issued the paper referred to by Mr. Haynes as a separate pamphlet. In the copy he gave me, on p. 2 under the heading *Lycaena dispar*, he states that Andrews's records are not reliable and on p. 11 he brackets him with Thomas Salvage in the unreliable section. The verdict must, I fear, be that there is no reliable evidence whatever for the occurrence of *dispar* in Ireland.

## *Aricia agestis* Schiff. in Ireland?

By E. S. A. BAYNES, O.B.E., F.R.E.S.

On the third page of Mr. T. W. Jefferson's comprehensive and interesting article on *Aricia agestis* Schiff. in Great Britain, in the May issue of this journal, there are references to the existence, at some time, of the ssp. *artaxerxes* Fabr. in Ireland; while on the final page the following sentence occurs: "One feels that the N.W. of Ireland should still harbour a colony of *artaxerxes*".

But has *agestis*, in any form, ever been found in Ireland? I think it very doubtful. What is the evidence?

Birchall (1866) in his original list of *The Lepidoptera of Ireland* mentions "Dundrum near Dublin".

Barrett (1893) refers to the above and to two additional records by Birchall (which I have not traced), and writes as follows: "In Ireland only the typical form—if any—appears to have been observed. Mr. Birchall recorded it from county Wicklow and near Dublin, also

from the Mourne Mountains, near Rostrever; but he subsequently expressed doubt about these records”.

Kane (1901) ignores Birchall's records, but writes as follows: “*Lycaena astrarche* var. *artaxerxes* Fab.—Four specimens taken in Co. Galway (R.E.D.). I had the pleasure of seeing two newly set examples in July, 1893. They were well characterised specimens, with white discoidal spot on fore wings, and on the under side all the spots white except the orange marginal ocelli”. Doubt has, however, been cast on some of the records of ‘R.E.D.’

Donovan (1936) summarises the above records and, in regard to the Co. Galway record, states: “I do not doubt Kane's identification, but strongly suspect the native source of the specimens”. He adds: “There is one in the Brit. Mus. Coll. labelled ‘Dublin’, but without further data”. Donovan places his paragraph relating to this species in brackets, indicating his view that there is insufficient evidence to regard *agestis* as an Irish insect.

If any other evidence exists regarding the finding of *agestis* or *artaxerxes* in Ireland, I should be very interested to hear of it. On the basis of the above, however, I do not think we are justified in believing that the species has ever been found in Ireland.

2 Arkendale Road,  
Glenageary,  
Co. Dublin, Eire.

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## The Lepidoptera of Derbyshire since 1926

(Concluded from page 106)

### Part 5—Mainly Microlepidoptera

By D. C. HULME

The moths numbered 1,097 to 2,313 by Heslop will now be reviewed. This vast assemblage includes thirty-nine Macrolepidoptera (here considered to be the species covered by South's three volumes) of which eighteen have been recorded for Derbyshire. In 1916, after studying the Macrolepidoptera for eleven years, H. C. Hayward turned his attentions towards the Microlepidoptera. He succeeded in confirming many of the 19th century records of Edwin Brown and the Rev. F. M. Spilisbury and also discovered 110 “micro” species new to the county, mostly from the well worked South of Trent Area. He specialized in the *Tortricidae* and was the first lepidopterist to draw attention to the specific distinctness of what had previously been known as *Eucosma solandriana* form *sinuana* Hübn. W. G. Sheldon named a number of forms of *E. solandriana* (Linn.), *E. brunnichella* (Linn.) and *E. semifuscana* (Steph.) from his Repton specimens (see Volume 68 of *The Entomologist*). He was practically a lone worker in this field and in the introduction to his 1926 list wrote “it is unfortunate that so few

records of *Tortrices* and *Tineae* are available outside the southern area: almost all are from the neighbourhood of Little Eaton, Repton and Burton and there is room for more work upon these families in the northern portions of the county". H. W. Daltry, thereafter, began to supply records and specimens from Dovedale, including *Yponomeuta stannella* (Thunb.) which Heslop christens the Derby Lead-silver Ermel. His successor as recorder of the North Staffordshire Field Club, R. G. Warren, continues the good work in this profitable locality. H. N. Michaelis, now Hon. Assistant Secretary of the British Trust for Entomology Ltd., has furnished numerous records from Millers Dale (Area 4) and the Dale of Goyt (Area 8) including 58 new "micro" species.

The table gives the number of species positively recorded in Derbyshire and each Area of the county for five of Heslop's superfamilies, plus the *Choreutidae* which were mentioned in the previous part but did not figure in a table.

Group	No. of species	Area							
		1	2	3	4	5	6	7	8
<i>Choreutidae</i>	3	3	3	2	1	0	0	0	1
<i>Psyches</i>	17	14	8	7	5	3	6	0	0
<i>Tortrices</i>	180	130	83	95	81	16	24	0	81
<i>Tineides</i>	265	192	78	9	105	7	18	0	118
<i>Nepticulides</i>	11	5	3	0	2	0	0	0	2
<i>Micropteryges</i>	14	14	8	5	9	5	6	0	2

That the position north of the River Trent has improved can be judged if we take as an example the *Tineides* (*Tinaeidae*) and give the corresponding figures for 1926:—205 species, 189, 53, 3, 5, 1, 2, 0 and 0. But the county east of the River Derwent remains *terra incognita* as regards Microlepidoptera.

### PSYCHES

We have four of the *Zygaenidae*. The two burnets, *Zygaena filipendulae* (Linn.) and *Z. loniceræ* (Scheven), are fairly evenly distributed while our foresters, *Procris geryon* (Hübner) and *P. statice* (Linn.) are practically confined to the Mountain Limestone.

Seven clearwings are on our list, though of these, three have not yet been found outside Area 1 and, of the remainder, only one, *Sesia apiformis* (Clerck), noted north of latitude 53°, being recorded at Bake-well prior to 1895 by the Rev. R. H. Fuller. The occurrence of this species in the county was queried in the 1926 list, presumably because Hayward, an undoubted authority on the *Sesiidae*, had not found it himself in Repton Shrubs.

Hayward's list included a single "sweep", *Fumea* (*Fumaria*) *casta* (Pall.) though he had bred from cases two ♂♂ and several ♀♀ of *Epichnopteryx pulla* (Esp.) in 1916. J. H. Johnson has added a third representative, *Pachythelia opacella* (H.S.) with a single ♂ taken at rest from a Beeley Moor wall on 23rd May 1953.

George Baker, of *Epichnoptera ilicifolia* (Linn.) fame, recorded our only "smoke", *Narycia marginepunctella* Steph., at Wirksworth (Area 4) before 1892.

*Zeuzera pyrina* (Linn.) is noted for all Areas except 4, 7 and 8,

while *Cossus cossus* (Linn.) has a more southerly distribution in Areas 1, 2 and 6.

### TORTRICES

Twenty-eight bell moths have been admitted recently as follows:—two early records were overlooked and H.N.M. has recorded twelve new species; H.C.H., seven in his last nine years; H.W.D., four; R.G.W., two; and D.C.H., one. Full details and acknowledgment will be given in the new manual but here we must select a quarter of the more interesting additions.

*Peronea caledoniana* Steph. First taken in July 1931 on Matlock Moor (Area 5) by H.C.H. Since bred by H.N.M. from larvae found on *Vaccinium myrtillus* on Goyt's Moss (Area 8).

*P. schalleriana* (Linn.). The Rev. F. M. Spilsbury was not sure of his own Repton record but H.W.D. confirmed its occurrence in Derbyshire when he took the species in Dovedale in 1936.

*Ancylis uncana* (Hüb.). Two taken by H.N.M. in 1954 on Taxal Moor (Area 8).

*Argyroplote ochroleucana* (Froel.). Two imagines beaten from wild rose by R.G.W. at Thorpe (Area 4) on 18th July 1948.

*Eucosma turbidana* (Treits.). Discovered by H.W.D. and H.N.M. at Dovedale and Millers Dale (Area 4) and Whaley Bridge (Area 8).

*E. expallidana* (Haw.). H.C.H. took one at light in Repton on 21st July 1933 and H.N.M. found another in Millers Dale in July 1954.

*Hemimene alpinana* (Treits.). H.W.D. swept one from a steep grassy bank at the foot of a limestone cliff in Dovedale on 4th June 1928. This species had not previously been recognized as British.

### TINEIDES

Of the sixty additions to this superfamily, four are overlooked early records, thirty-seven are to H.N.M.'s credit (sixteen, one and twenty being first found in Areas 4, 5 and 8 respectively), fourteen discoveries of H.W.D. (all on the Mountain Limestone), three by H.C.H. (two in Area 1 and one in Area 5) and two by R.G.W. (both from the Coal Measures).

A bare list of these species would interest few readers and fuller treatment of even a limited selection would occupy too much space. It may, however, be useful to tabulate the recorded distribution of the six household pests dealt with in the *British Museum (Natural History) Economic Series* No. 14 (1951).

Specific name	Area							
	1	2	3	4	5	6	7	8
<i>sarcitrella</i>	*	*		*		*		*
<i>pseudospretella</i>	*	*		*				*
<i>tapetzella</i>	*					*		
<i>bisselliella</i>	*	*						
<i>pellionella</i>	*	*						
<i>pallescentella</i>	*					*		

The two house moths surely infest every Derbyshire house, no matter how scrupulously kept clean. Last year in my own home I caught

fifteen *Endrosis sarcitrella* (Linn.) imagines, with a further eleven taken on the outside walls or in the garden shed, between 24th April and 31st October and, similarly, seventy-two *Borkhausenia* (*Hofmannophila*) *pseudospretella* (Staint.), plus fifteen out-of-doors, between 12th May and 26th October. Only seven true clothes moths—all *Tineola bisselliella* (Hüm.)—were collected indoors.

### NEPTICULIDES

The first records of five "pigmies" recently gained can be briefly given.

*Nepticula* (*Stigmella*) *regiella* (H.S.). Dovedale, 1928 (H.W.D.).

*N. aurella* (Fabr.). The Burton district record (? Staffs.) quoted in the 1926 list confirmed by Dr. P. B. Mason's late 19th century record.

*N. myrtillella* (Staint.). Goyt's Moss, 1954/55, common (H.N.M.).

*N. septembrella* (Staint.). Millers Dale, 1957, imagines and mines (H.N.M.).

*N. weaveri* (Staint.). Goyt's Moss, 12th May 1956, two mines (H.N.M.).

### MICROPTERYGES

Fourteen species, five of which are our generally distributed swifts, are reliably documented for Derbyshire. The only recent addition is *Micropteryx seppella* (Fabr.) = *aruncella* (Scop.) which was taken abundantly in Dovedale in the mid-twenties by Mr. Daltry.

### CONCLUSION

It is hoped that this paper will prove of some interest to lepidopterists both while the new list is awaited and after its publication. The main objects are to signalise the serious gaps in our knowledge of distribution and to urge all workers to send in their records or publish them in a national magazine (one hesitant contributor apologised for the dullness of his list yet he provided a dozen first records of common species for one Area).

Derbyshire appears to be the southerly extent of several moorland moths and (?) one butterfly and is possibly the northerly limit for a number of British species so it is important that this county's lepidopterous fauna be thoroughly and critically investigated.

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## An Entomologist in Jugoslavia

By RALPH L. COE

(Continued from page 136)

The road now dipped gradually to the lake, and continued along the northern shore. To our right rose an almost perpendicular face of rock. As the bus turned a sharp corner, the tiny settlement of Otesevo came into view, and taking a narrow byroad to the left, we soon pulled up at our destination.

Spread out along the shore over a short distance in this wonderful spot are several wooden built hotels with a communal restaurant, erected as a sort of holiday camp for the workers. Here they are accommodated at cheap rates when on paid leave. Similar centres

have been set up in many beautiful places in the country, but surely few can compare to Otesevo for its peaceful, remote loveliness.

I booked in at the little reception building, and was shown up to a hotel standing high on a steep knoll. The room allotted to me was large and comfortably furnished, complete with wash basin and a private toilet adjoining. French windows led on to a verandah which commanded a wonderful view of the lake and mountains. As I unpacked and settled in, there was no doubt in my mind that I had reached a collector's paradise. In actual fact, so well did Otesevo come up to my expectations that my planned week's stay became extended to a fortnight.

Dusk was falling as I went down to the restaurant for my supper, wondering what strange dishes were now to be my lot. I made for one of the tables that were scattered about a terrace that reached almost to the water's edge. Among the Yugoslavs sitting and standing about were several maimed ex-partisans of Tito, distinguished by a little silver badge worn in the lapel, resembling in shape and size that of our own ex-Servicemen. A waiter in lounge dress came up to my table, but as there was no written menu and the dishes that he rattled off conveyed nothing to me, we did not make much progress. However, when he found that I was English, he went off beaming and came back with the cook, a charming man who had taught himself the rudiments of our language and was anxious to practise it. He recommended a Macedonian speciality that consisted of alternate layers of thinly-cut veal and thick pastry, flavoured with onions. It was very tasty indeed, and became my choice of dish whenever it was 'on', so many of the local concoctions being unpleasantly greasy and oily to an English palate.

Tired after my long journey, I retired early, but the strains of a guitar accompanied by communal singing from an adjacent building kept me awake until long after midnight. It was one of the few occasions when I failed to appreciate the Yugoslav's love of music and song. A nightly disturbance that I had not come across elsewhere and what became really infuriating was the almost continuous barking of dogs. I was told that these were sheep-dogs that had run away and become semi-wild, roaming about in packs after dark. Efforts are made from time to time to shoot the pests, but they are cunning and elusive.

After an early breakfast the next morning I set off to collect. The sun blazed hotly down. Just outside my hotel was a deep gully, knee-high in grass and rich with white blossomed Umbelliferae. By mid-day I had taken a splendid assortment of Diptera from the blooms, mainly Syrphidae, Bombyliidae and Tachinidae. It was a gratifying start, indeed. Then I set off past the hotels along the shore of the lake until the little settlement was out of sight. Most thrilling to me about Otesevo was the occurrence there of many Diptera of the Mediterranean region, as well as other of its fauna. Lovely green lizards ran along the ground and among the shrub branches, while in and out of the water hopped a species of frog with green head and brown body. Wherever I went in the patches of oak-scrub on the slopes above the lake, a constant rustling came from the lumbering movements of great tortoises, some as long as my full hand's span. One



did not retreat as usual when I approached, and bending down I found that a large thorn had pierced one of its eyes, which was blind. With my forceps I managed to pull out the offending object, and the tortoise made off into the undergrowth, no doubt feeling better for the operation.

I spent some time at the water's edge, examining the rocks over which wavelets continually lapped. In this specialised situation the remarkably agile Empid flies of the subfamily Clinocerinae occur. They are extremely difficult to catch, so swift are their movements as they evade the lapping water, either running to a higher level or flying to an adjacent rock. To add to the sporting nature of this particular hunt, their drab grey colour provides a perfect camouflage. After some time I spotted one, and eventually took examples of several species, which have not yet been determined. I also took in the same situation a male of the Ephydrid *Lamproscatella dichæta* Loew.

While I was kneeling on a rock with my nose close to the water, I was more than a little scared when a big snake suddenly broke surface, reared up its head, and flashed its fangs straight at me. Then it rapidly swam away. It was certainly not one of the British species, and may or may not have been harmless. By the time I returned to the hotel, I felt thoroughly satisfied with my first day's collecting.

The next morning dawned cloudy and cool, but a few hours' vigorous sweeping in the grassy gully by the hotel produced a good assortment of flies. After a time I climbed up the opposite bank and soon found my way impeded by a dense wood of bushy acacias. Used at home to encountering these trees singly, I had not realised how formidable an obstacle are their thorny branches when growing closely together, and it was only by constant stooping and much manoeuvring that I made my way through them. I found myself in a clearing, the ground baked hard by the sun, and practically the sole vegetation clumps of dried-up grasses. Uninviting as the place seemed, a thorough sweep through it produced a dozen or so examples of the Asilid genus *Leptogaster*, varying in size to an extraordinary degree, and probably including more than a single species. On a later occasion I was delighted to capture on the site a female of *Spilomyia manicata* var. *digitata* Rondani, an incredibly wasp-like species of Syrphidae. It was running about in company with its hymenopterous 'doubles' on the leaves of a stunted oak in hot sunshine. Besides being new to the British Museum collection it was an addition to the Yugoslav list.

Before going down to the restaurant for supper that evening I had to put on extra clothing, as after dusk by this mountain-girt lake the air becomes really chilly. As I was eating, I thought how delightful is the Yugoslav's habit of singing when he feels particularly happy. At the table next to me sat two young fellows. One suddenly broke into a folk song, and the other joined in. On buses this always happens as we near our destination, if not before. When I had finished my meal, the cook brought a flask of wine over to my table and sat down. As we were chatting, to my surprise a waiter seated at a nearby table with another man suddenly leaned over to his companion and kissed him on both cheeks. The cook explained that this is a common custom in Macedonia.

To my disappointment it was raining hard and a strong wind blow-

ing the following day. However, in the morning I climbed a hill covered with oak-scrub and managed to beat a few flies out of shelter. Soon my net was soaking, and I returned to the hotel. Back in my room, I began to feel unwell, and soon found myself in the horrid grip of an attack of dysentery. The greasy and oily food was taking its effect. Absence of biscuits, cakes, puddings and other familiar items of diet at Otesevo made choice of food very difficult for anyone suffering from my inconvenient malady. Even the homely cup of tea was unobtainable. During my indisposition I ate only bread and an occasional egg. Before leaving home I had read that travellers to Jugoslavia should at the onset of dysentery go to a chemist for Sulfagvanadin tablets. There being no shops at Otesevo, I was fortunate when a visiting doctor came to the hotel on my third day of sickness and I managed to obtain from him a supply of the precious tablets. They soon cleared up the trouble, and I would not be without them on a similar journey.

Throughout my stay at Otesevo the weather was extremely changeable. A short spell of very hot sunshine would be followed by one or more cold, rainy sunless days. However, even on the worst days the clouds usually cleared for a time, and it only needed an hour's sun to dry the foliage and bring out the insects.

One morning I had wandered along the lake-side for quite a distance, and suddenly realised that I must be nearing the Albanian frontier. Having been told that the first indication that I had passed the boundary would probably be the whizzing of a warning bullet past my head, I turned inland and started collecting on a shrub-covered hill. After the first long sweep I sat down, put my head in the net, and started sucking the small diptera into my aspirator. As a net handle I had a short length of rubber hose plugged at one end with lead. Handy for collecting, it also afforded a useful weapon in case of need. Engaged in my peaceful occupation, suddenly through the mesh of the net I dimly saw three figures standing over me. Disengaging my head, I grasped the net handle and leapt to my feet, startled. Three uniformed soldiers with tommy-guns strapped on their backs jumped away as though I was about to attack them. Recovering their poise, they started interrogating me. To everything I replied, "Ne razumen (I do not understand)". Then I showed them my aspirator, teeming with insects, and brought out a box of pinned specimens from my haversack. They discussed me between themselves, and probably deciding that I was a harmless lunatic, escorted me down to the lake and pointed in the direction of Otesevo. Without further prompting I took the hint and retraced my steps along the shore.

That evening the cook again joined me at my table after supper, and I asked him to explain something that was puzzling me. The staff of the hotels and restaurant seemed unnecessarily large, for while some were always busy others appeared to have very little to do. Marshal Tito, he told me, had shown such gratitude to his early supporters (those who fought with him before it became evident that he would attain power) that some had been given jobs that amounted almost to sinecures. When they fought early in the war they received no pay, so specially generous treatment had now been meted out to them. In

addition these patriots get reduced train fares and a small annual pension. When one considers that the great bulk of Tito's supporters only flocked to him when his victory became certain, deserting rival partisan groups whose downfall was inevitable, privileged treatment of his original fighters seems only natural.

Before going to bed that night, I watched a group of men playing a variation of our game of billiards. The table has no pockets, and up one end are a number of tapering pegs, set up to form a triangular pattern. Three balls are used, and the object is to make cannons without knocking over the pegs. As soon as a peg is displaced, it is set up again and the next player takes his turn. I joined in one game, and found that it called for a high degree of skill. One elderly peasant was a pleasure to watch with his beautifully delicate strokes.

For a change of terrain, the next morning I walked back a short distance along the Resen road to the steep rock-face which we had passed in the bus. After some searching I found a gully and made my way to the summit. The bare ground over which I scrambled was strewn with loose pieces of slate, and on these, basking in the sun, were several interesting species of Bombyliidae. While I was collecting the flies I almost stepped on a very large snake coiled up asleep. From a distance, I threw a piece of slate at it, and rapidly uncoiling it glided swiftly away into a bush.

Reaching the top, I was admiring the wonderful view of the great lake below, when a ragged little shepherd boy came up to me. I offered him a cigarette and showed him some of my captures. Several hundred yards off on a lower slope his sheep were quietly grazing among the bushes. He kept looking towards them, and suddenly one animal scampered away from the rest in the opposite direction from where we were standing. The boy made a peculiar 'baa'-like call, and the stray at once moved back to rejoin its fellows. As I went on collecting the boy watched me. From time to time he would play some notes on a flute-like instrument and the sheep would bunch together. There was a wonderful understanding between the little shepherd and his charges. When he saw my interest in his flute, he pulled out another from inside his shirt and offered it to me. I accepted the souvenir gratefully, and to his delight gave him in exchange sixty dinars and a packet of cigarettes.

(To be continued)

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## Notes on Microlepidoptera

By H. C. HUGGINS, F.R.E.S.

*Loxostege sticticalis* Linn. This Pyralid is usually rather difficult to get; its headquarters as a native species is the Brecks, although in some years odd specimens turn up in many parts of the country as it is also an immigrant.

It seems probable that only the light lands of the Brecks are suited to it as a resident, and that even there it holds its own with difficulty as usually it is decidedly uncommon although its food-plant (mugwort) is generally distributed. A favourable year, however, produces a large second brood at the beginning of August. The first brood always seems

rather rare and it is probable that most of the larvae and pupae perish in the winter. It must be remembered that the food-plant is commonest on the edge of cultivated land so that in the autumn and winter a lot of the larvae and pupae that produce the early brood are destroyed in agricultural operations. A hot June and July, however, produce a big second brood (this is only partial otherwise) and the moth is occasionally found in plenty on the edges of weedy and badly cultivated fields. At the beginning of August 1955 it was common in such places on the Tuddenham-Higham road, particularly on the edges of cart tracks between fields; whether 1956 reduced its numbers I cannot say as I did not look for it in that year.

*Evergestis extimalis* Scop. The larva of this beautiful insect is not uncommon in many parts of the Breck on the seed heads of mustard and charlock in early August. They spin a web round the flowers and green seed-pods and are somewhat gregarious, two or three being sometimes found in one web. It seems likely that a large number are destroyed in the autumn cleaning of fields, round and in which the food-plants grow, as although the larva is often found locally in some numbers, the moth is usually rather scarce. In rearing the insect it must be remembered that although the larva is full-fed and spins a cocoon on the surface of the soil by the end of August it does not pupate till the following spring and must be exposed to all weathers until then. This is, however, quite easy; the larvae should be placed in a large flower-pot half-filled with light sandy soil over which is a thin layer of moss. This can then be covered with a piece of muslin to exclude pests and stood in the garden on concrete on a dry path to ensure drainage, and the moths will emerge without difficulty in early June.

*Dioryctria hostilis* Steph. The usual instructions for finding the larva of this moth give too late a date; it is best looked for in the middle of August as in an early year it pupates before the end of the month. As it is an easy insect to rear, it is much better to look for it a little early than too late, though the young larva has to be searched for with some care as several Tortrices roll and twist aspen leaves, whilst when it is full grown it unites several leaves together, particularly when two or three make a communal nest. The young larva is of a sandy colour with a dark brown striated back; in the last skin the back is black with whitish striations and the sides greenish. The larva pupates at once in a cocoon formed of rubbish and the pupa may be kept quite dry in a metal box in a cool place with perfect safety. *D. hostilis* is found in a good many places in Kent and probably also in Surrey, Sussex and Essex where the aspen grows in old woodlands. Few people appear to search for the larva, and the moth is a sluggish and retiring one, though I have once or twice beaten it, and taken it at light.

## Notes on the Tineina

By S. WAKELY

*July.*—Numbers of 'micros' can often be taken by using a bee-smoker. This is a small kind of bellows which can be used to puff jets of smoke into tussocks of grass and thick herbage, and the purchase

of one is a good investment for the really keen entomologist. It is not suitable for every kind of collecting ground, and great care must be taken not to start fires on commons and heathlands when re-charging it, as the hot material thrown out can smoulder and quickly burst into flames. It is a most effective instrument to use at Dungeness and on salterns. Among the species which can be taken in numbers by this method at Dungeness are *Mniophaga umbrosella* Zell., *Gelechia suppeliiella* Wals., *G. diffinis* Haw. (the last two are attached to Sorrel), and *Depressaria badiella* Hb. In the vicinity of sandhills *Mniophaga mundella* Dougl. and *M. senectella* Zell. are often abundant in isolated clumps of Marram Grass and come pouring out as the smoke reaches them. A calm day is essential for success.

Imagines of the very local *Blastodacna* (*Mompha*) *stephensii* Stt. are easy to find in the London area. They can be found at rest on the bark of the larger oaks in parks during the latter half of July. I have found it very commonly in Dulwich Park and Tooting Beck Common where as many as a score may be seen on one tree.

If the trunks of poplar trees are examined *Batrachedra praeangusta* Haw. will often be seen at rest. Other species are easier to take by beating the branches of trees over a beating tray or umbrella. *Batrachedra pinicolella* Dup. can be dislodged from several species of fir and the quaint looking local *Stathmopoda pedella* L. (with a leg stuck out on each side at right angles to the body) still occurs near London on the banks of the Ravensbourne. This latter species occurs in the early part of the month. Another rare species occurs in Hyde Park and Kensington Gardens, namely *Tinea caprimulgella* H.S. It occurs on scars on elms—those bald patches where the bark has been removed at some time so often seen on large elms. The larvae feed on the wood at these scars, and the moths rest on the smooth wood for a few hours in the morning after emerging from pupae.

Two species of *Adela* can be taken on sunny days at flowers of scabious. *Nemotois scabiosella* Scop. occurs on *Scabiosa arvensis* and *N. cupriacella* Hb. seems to prefer *Scabiosa succisa*. Sweeping the blossom is usually more productive for this last species.

By collecting a bag of flowers and seeds of *Malva sylvestris* larvae of *Platyedra vilella* Zell. can be found, but it is very local. I have found it at Erith and Faversham in Kent and also at St. Helens in the Isle of Wight. The material should be examined after a few days and any larvae found kept in a small tin with a supply of food which can be renewed every few days. If left in a bag the material will all go into a mouldy mass and the larvae die.

The white blotches caused by larvae of *Anybia epilobiella* Roem. should be looked for on *Circaea lutetiana*. I have taken it at Effingham and Horsley in Surrey. *Mompha nodicolella* Fuchs is getting more widespread nowadays, but has a habit of disappearing completely from a locality where it has occurred in numbers the previous year and then appearing in a new district. It is best taken as larvae, and the galls in the stems of *Epilobium angustifolium* should be looked for this month. It is particularly fond of heathlands. Any gall found with a hole in the side is useless as the larva has left for pupation.

In damp places where *Scutellaria galericulata* grows the larvae of *Choreutis myllerana* F. can be found at the end of the month. The

feeding places are conspicuous blotches or "windows" in the leaves, and the larvae can be found under such leaves which are often puckered by strands of silk drawing the edges downwards. Both this species and *C. punctosa* Haw. can be bred from larvae taken together. *C. myllerana* also occurs among *S. minor*.

Other larvae to look for are *Hyponomeuta vigintipunctata* Retz. on *Sedum telephium* (gregarious in a web); *Gracillaria semifascia* H.-S. making cones on maple (Headley Lane, Boxhill, Surrey, is a good locality); *G. tringipennella* Zell. in a long "blister" on upper side of leaf of *Plantago lanceolata*; *G. elongella* L. and *G. betulicola* Hering (both on rolled leaves, the former on birch and the latter on alder); and *Bucculatrix crataegi* Zell., a very active small greenish larvae which can be beaten in numbers from hawthorn at Ashtead, Surrey—the only locality in which I have encountered this very local insect.

*August*.—During the month many interesting and local larvae are to be found, and these are often neglected as there are so many species to be taken in the perfect state. Leaves of *Circaea lutetiana* should be examined for the greenish mines of *Mompha terminella* Westw. The mine starts as a small speck which is encircled in widening circles until a large area of the leaf is eaten. All the mines are practically touching, and several larvae are often in one leaf. The larvae are easy to feed as they go freely into fresh leaves if these are placed on top of those in which the larvae are found. The leaves must be placed on earth in a flower pot when the larvae are full fed so that pupation can take place in the soil. The pot should be covered with a piece of linen and buried to the rim in the garden under a bush. This can be left there safely till the following May, when it can be kept under observation. *Mompha decorella* Stt. larvae feed in galls chiefly in the stems of *Epilobium montanum*. Pupation takes place in a cocoon within the gall. I have seen the galls quite common on Mickleham Down, Surrey, and also in Alice Holt Forest, Hants, but in some years it is very scarce. The larvae of *M. subbistrigella* Haw. feed on the seeds of *E. montanum*. They can be found by twisting the long seed pods which split open and show if larvae are present. It often occurs in neglected gardens, as well as in woods.

*Depressaria ultimella* Stt. is one of the hardest species to get. The larvae feed in the stems of *Oenanthe phellandrium*, a plant which occurs in the Romney and Pevensey marshes. Last year I managed to breed half-a-dozen moths from larvae found near Lydd, Kent, but the larvae were apt to eat their way through the linen sleeve which covered their foodplant, and some were lost. Although said by some authors to be common, in my experience it is quite a rare species, but this may have been because I searched in the wrong place. The *Oenanthe* was very common at the spot. Larvae of *Depressaria nervosa* Haw. occur in vast numbers on the *phellandrium*, and pupate in the hollow stems in batches. The larvae of *D. ultimella* are very delicate looking pale caterpillars, very different to those of the highly coloured *D. nervosa*.

Both *Antispila pfeifferella* Hb. and *A. treitschkiella* F.R. can be taken as larvae in August and later, feeding in a large blotch in leaves of *Cornus sanguinea*. They cut out an oval piece of the leaf which drops to the ground and in which they eventually pupate. The empty

blotches with hole adjoining are much easier to detect than the blotches in which the larvae are still feeding.

Larvae of *Ethmia terminella* Fletcher can be found feeding in a silken tube running between the double layer of seeds of *Echium vulgare*. *E. bipunctella* F., however, feeds on the leaves, usually on the underside. These handsome species both occur at Dungeness. They like to burrow into soft wood to pupate, and are easy to rear.

*Gracillaria cuculipennella* Hb. larvae feed on privet in a leaf folded in a neat cone. Pupation takes place in the cone. I have only once found this local species when they were on oval-leaved privet growing on both sides of a private road leading to a large house at Kingsfold, Sussex. *G. populetorum* Zell. occurs on birch, the larvae feeding in rolled or folded leaves. It occurs at Ockham, Surrey, with the common *G. betulicola* Her. A much rarer species is *G. falconipennella* Hb. a specimen of which was bred last year by J. M. Chalmers-Hunt, who took the larva near Thursley, Surrey. Alder is the foodplant, and the larvae feed in rolled or folded leaves similar to the common *G. elongella* L. which occurs with it.

Larvae of *Parectopa ononidis* Zell. should be looked for during the month. They mine leaves of clover, making a white blotch, and pupate in a white cocoon under the turned-down edge of leaf. I have taken larvae at Coulsdon, Surrey. Although said to feed on Rest-harrow, as far as I know the larvae have been found only on clover in this country.

## Notes and Observations

ACHERONTIA ATROPOS L. AND HELIOTHIS PELIGERA SCHIFF. IN NORTH-WEST SURREY.—This year's remarkable May immigration has been well represented in my mercury vapour light trap here. On the night of 9th/10th May a female *H. peltigera*, dark and richly marked, and two *Nomophila noctuella* Schiff. came in; 14th/15th May yielded a female *A. atropos*, and 22nd/23rd a male *H. peltigera*, this time of the pale form, with a worn *N. noctuella* on the next night. One worn *Plusia gamma* L. appeared on 18th/19th May, and two more next evening. This immigration is the more interesting in that throughout France and Germany the season seems to be less late than it is here, with very little warm weather. It seems likely that these insects have come right through from Southern Spain or North Africa.—R. F. BRETHERTON, Ottershaw, Surrey. 25.v.58.

PAPILIO MACHAON LINN. POPULATIONS OF N. EUROPE.—Little more can be added to the question whether the disappearance of the Swallow-tail butterfly from its former wide southern range in England is due to a climatic change or to foodplant reasons, and readers must decide for themselves which theory they prefer. However, Professor Balfour-Browne's article (*Ent. Rec.*, 70: 33-34) raises the question of Dr. Verity's opinion of the origin of the fenland subspecies *britannicus*, and it was surprising to read that, in a letter passed to Professor Balfour-Brown by Mr. P. B. M. Allan, Verity wrote that he considered *britannicus* as belonging to the northern, nominotypical *machaon* exurge which reached Europe from Siberia. In his book (1945), *Le farfalle diurne d'Italia*, Vol. 3, pp. 25-26, Verity expresses the opinion

that *britannicus* is probably the central exurge which entered S. Europe from Asia Minor at an earlier period, and that *bigenratus* is a synexurge between the northern and the central. If Professor Balfour-Browne has not misunderstood Dr. Verity, one must ask whether the letter was written before or after the book. One would expect the book to enshrine his final conclusion.

Some interesting notes on this butterfly's ecology in N. Germany appeared in 1955 in an article by G. Warnecke, "Die Grossschmetterlinge des Niederelbgebietes und Schleswig-Holsteins" (*Verh. d. Ver. f. naturw. Heimatf. z. Hamburg*, **32**, I, p. 24), part of which I summarise below as it may not be accessible to readers. In the Lower Elbe district and Schleswig-Holstein *machaon* is generally distributed but not always common, preferring dry warm localities. In the big cities, e.g. Hamburg, the larvae are often common on cultivated herbs, including dill, cumin and carrot and also on wild umbellifers. Probably immigrants constantly reinforce the population there. In Schleswig-Holstein the butterfly is less common though generally distributed and the writer thinks there may well be a fenland subspecies there, as larvae have been found on *Peucedanum palustre* in marshes there; but further field studies are required to establish this supposition. The population is bivoltine but some gen. 1 pupae go into a long diapause and only hatch after hibernation.

This partial diapause, making it almost impossible to give definitely the number of annual generations, is characteristic of many *machaon* races, perhaps all; it is described at some length in an article shortly appearing in the *Transactions of the R. Ent. Soc. London* from my pen on the Natural History of *P. machaon* in Bagdad.—E. P. WILTSHIRE, British Embassy, Rio de Janeiro, Brazil. 4.iv.58.

**PYRAMEIS CARDUI L. AT LINCOLN.**—On Whit-Tuesday, 27.v.1958, I observed a specimen of *Pyrameis cardui* L. flying round the very top of the cathedral tower, and settling on the lead. The height of the tower is 271 feet, plus 300 feet above sea level.—THE REV. PETER HAWKER, Gauthy Rectory, Lincoln. 28.v.1958.

**MOTHS AT LIGHT IN CORNWALL.**—A fine specimen of *Celerio livornica* Esp. came to my mercury vapour lamp on the night of 8th June. It is a female and measures 3.15" in span. The other (I presume) immigrants on the same night were 4 *Heliothis peltigera* Schf., 1 *Peridroma porphyrea* Schf. and about 200 *Plusia gamma* L. *Heliophobus albicolon* Hb. turned up on June 3rd, *Plusia festucae* L. and *Notodonta anceps* Göze on 8th June, and *Apatele alni* L. on 10th June. The first three are species I have not taken here before. It has been a long drab winter in Cornwall, lasting virtually until the end of May. In fact, nothing prior to this month was hopeless. A Striped Hawk 'year' would do much to restore morale!—DR. F. H. N. SMITH, Perranporth, Cornwall. 12.vi.1958.

**THE INTRODUCTION OF ARASCHNIA LEVANA LINN.**—Arising out of "Memories of S. G. Castle Russell", Mr. G. B. Oliver has thrown fresh light on the introduction of *levana* (*prorsa*) into the Forest of Dean. Mr. Oliver states that he never saw the first brood of *levana*, but about



1912 he saw and took some five specimens of *prorsa*—the dark second brood—in early July, and from a captured female bred about a score of *levana* the following season.

He reported the capture of the *prorsa* to *The Entomologist*, but at this distance of time cannot remember the date of the report as he later on destroyed his series.

Mr. Oliver never released ova, larvae, pupae or imagoes of *levana*, but two or three years after its appearance he met a young collector in the New Forest who mentioned that he had visited the Forest of Dean and had scattered a number of pupae of a pretty German butterfly there.—COLONEL S. H. KERSHAW, Alderman's Place, Aspley Heath, Bletchley.

A STREPSIPTERON AS THE PREY OF AN EMPID FLY.—Male Strepsiptera are not regularly caught by entomologists in the field and, probably, are also rarely captured by insect predators. Consequently the capture of an Empid, *Bicellaria sulcata* Zett. subsp. *vana* Collin, with a male Strepsipteron, belonging to the family Elenchidae, as prey is unusual. Only one species, *Elenchus tenuicornis* Kirby, is given in the family Elenchidae in Kloet and Hincks, 1945, *A Check List of British Insects*, and this species is parasitic on Homoptera.

The Empid was common near a small stream at Eynsford, Kent, in June and early July, 1956. This species has the habit of standing at the tips of leaves or on grass heads near the water, and the individuals with prey can be recognised by the body being tilted forward and the head down on the grass heads. Only females were captured with prey, although the males are known to be predacious. Most of the prey captured were small Diptera (Cecidomyiidae—3 ♀♀, *Sciara* sp.—2 ♂♂, Phoridae—2 ♀♀), but a small Homopteron, *Aphalara polygoni* Fstr. (det. J. P. Doncaster), was also captured, as well as the male *Elenchus*. The colony at Eynsford was watched for some time but no actual capture of the prey was observed. The position taken up by the resting Empids suggests that the prey may be captured in the air. On the other hand twelve out of the seventeen Dipterous prey recorded here and previously (1955, *Ent. mon. Mag.*, 91: 222) have been females. Those Empids that are known to capture their prey in the air, such as *Empis* and *Rhamphomyia*, collect mostly males of the prey species.—B. R. LAURENCE, 4 Princes Garth, London Road, London, S.E.23.

SALDIDAE (HEM.-HET.) ON BOTH SHORES OF THE SOLENT.—While staying with a relative near Lymington (S. Hants.) during the last August Bank Holiday period I paid a visit on the 5th of the month to the entomologically famous Salterns in that district. Despite favourable weather insects were not much in evidence, including Coleoptera, though some *Anthicus salinus* Crotch (one of the more notable productions) were secured. However, Saldids were tolerably numerous running in the sun—as is their wont—on the damp sand and mud, so I decided to pay some attention to this interesting group of subaquatic jumping bugs; and continued to do so when on the next day but one I made a trip to Yarmouth, Isle of Wight. Five species were collected, and kindly named later by my friend Dr. A. M. Masee, the well-known

hemipterist. They are all characteristic of saline habitats, though two, *S. littoralis* and *S. pallipes*, occur inland to a lesser extent. The common *Saldula saltatoria* L. and *Chartoscirta cineta* H.-S. did not turn up, being decidedly more inland and non-halophilous species.

*Salda littoralis* L.: two solitary examples of this insect, the 'giant' of the family, on mud in different parts of the Yarmouth saltmarsh. It may be less gregarious than most of the others, and appears not to possess the power of leaping—a feature no doubt correlated with its larger size.

*Halosalda lateralis* Fln.: very local, but in some numbers where found; at Yarmouth it was chiefly on patches of moist sand behind the beach and fringing the saltmarsh, and on a strip of similar ground leading into it, but yielding place to the next species where the sand gave way to mud. At Lymington I met with it only in an area of fairly small shingle at the edge of one of the salterns, unaccompanied by other species; the ground under the shingle was sandy. It seems, therefore, that this Saldid tends to prefer sand to mud, at least in these localities.

*Saldula pallipes* F.: the commonest species at Yarmouth, occurring on mud beside the tidal creeks and also on the more sandy areas frequented by the last species. There was a strong tendency for the coloration to harmonize with the background; thus, darker (and mostly larger) individuals prevailed in the former habitat and lighter, smaller ones—having rather the aspect of *arenicola*—in the latter. Only two specimens were taken at Lymington, mixed with *pilosella*, but it must almost certainly be common there in suitable places. Like *lateralis*, it varies considerably in breadth of body as well as in size and the proportions of dark and light colouring.

*Saldula pilosella* Ths.: the only species not met with at Yarmouth, though probably existing there. At Lymington, however—where it was noted by Jones (*l.c. infra*) as abounding—it was the commonest species on the partly sandy, partly muddy shores, never straying far from the water's edge; and a single specimen was taken on the mud by a roadside ditch or sluggish stream half a mile inland. Evidently the brood was only just coming to maturity, for early instars were more numerous than adults and, as with the *H. lateralis* from this locality, 35-40% of my captures proved to be not fully hardened—an experience not paralleled with any species at Yarmouth. It varies less than *pallipes*, some forms of which closely resemble dark *pilosella*.

*Saldula arenicola* Scholtz: one specimen at Yarmouth on damp sand at the seaward edge of the saltmarsh. Seeing that it was something different, I spent some time hunting for more; but where it occurred, and in similar spots along the fringe of the marsh, all other Saldids taken consisted only of *S. pallipes* and *H. lateralis*. *S. arenicola* was the 'best' species found, being nearly confined in England to the coast from Hants. to Devon, and very local, as a rule, even in its headquarters. It is recorded also from quite dry places such as cliff-tops.

All the species here noticed are already known from these areas, at least in general (see H. P. Jones, 1930, *An Account of the Hemiptera-Heteroptera of Hampshire and the Isle of Wight* (*Ent. Rec.*, 40-42): 28-30).—A. A. ALLEN, 63 Blackheath Park, S.E.3. 5.ii.58.

We read recently in a book on Spain (*The Spanish Temper* by V. S. Pritchett, 1954, p. 62) that in the Sierra Guadarrama "One climbs through miles of pine shade where the lizards run; in the spring one sees patches of tiny daffodils, and will step across the sinister processions of caterpillars as fat as one's finger, that crawl head to tail in strings a quarter of a mile long". This is interesting, because if the full-grown larva of *Thaumetopoea pinivora* Tr. is two and a half inches long a 'string' 440 yards in length would contain 6,336 larvae. *T. pityocampa* Schiff. also feeds on pine, but so far as we recollect *T. pinivora* is the only one of the processionary caterpillars which proceeds in single file. Is there any record of the larvae from several 'nests' of *T. pinivora* joining to form a single procession? What is the longest recorded 'string' of this insect? We doubt if any moth of the genus *Thaumetopoea* lays 6,000 and more eggs.

## Current Literature

**HARRY THE LOCUST.** By F. Bailey; xii + 258 pp., 2 maps, 17 pl., 8½" × 5½". Cloth. Heineman, London, Melbourne, Toronto.

This book contains an account of the "light-hearted adventures of a locust officer" in eastern Africa and southern Arabia—more particularly in the Hadhramaut during the more recent Desert Locust (*Schistocerca gregaria*) campaigns in these territories. Early on in his career with the Desert Locust Control Organization Mr. Bailey discovered that 'harry' was a verb and not a proper noun, but he always thinks of the locust as 'Harry'. It is in this vein that his light-heartedness manifests itself throughout the book.

The author tells the tale of his experiences in a sincere and readable manner, always seeing the humorous side of the situation, so that some of the grimmer aspects of life under rather gruelling or harrowing conditions are veiled from the reader's eyes—or at least the sordid details are rendered less sordid. The picture painted is very true to life, however, as your reviewer can testify from personal experiences in earlier campaigns in eastern Africa. A sense of humour is indispensable to those who work on locust control and one such as Mr. Bailey's must have stood him in very good stead, particularly with his "staff". The author's style, particularly when dealing with subjects of a somewhat intimate nature, is well fitted to his task.

For those who seek information either on locusts or their control, this book will provide little which could not be obtained from other sources, but as an insight into the way a locust officer must live and for a graphic account of some of the lands in which the Desert Locust breeds, this book should prove informative and entertaining to all classes of readers, whether professionally interested or not. The author's understanding of the problems and points of view of the peoples with whom he comes into contact makes his book very refreshing, so that an entomologist can overlook the fact that Mr. Bailey is clearly not of their number.

D. K. McE. K.

HANDBOOKS FOR THE IDENTIFICATION OF BRITISH INSECTS. Vol. I, Pt. 16, by F. G. A. M. Smit. Continuing this much-needed work of the Royal Entomological Society, the present beautifully illustrated part contains 91 pp. of text plus 2 of index. It is designed to enable the beginner to set out to collect and study fleas, and for a start it could well be his vade mecum. It will also be of great assistance to the already established student of these insects.

After a short introduction and acknowledgments, two pages are devoted to collecting, which usually means collecting the hosts, and there are short paragraphs on preserving and labelling, and two pages on mounting. A very comprehensive glossary covers 10 pages with copious illustrations, and there are some general remarks before the treatise proper.

The treatise consists of good keys to superfamilies, families, sub-families and genera. Species are accorded a few lines of description, and this is followed by notes on hosts, distribution in Britain and abroad, and one or more drawings of distinguishing features, which are of very great assistance in reading the keys.

Finally, six pages give a summary of host associations divided into mammals and birds, both suitably sub-divided, and with lists of the fleas to be expected. The whole constitutes the practical handbook which one would expect to find in this excellent series.

S. N. A. J.

LA REVUE FRANÇAISE DE LÉPIDOPTÉROLOGIE has made a welcome reappearance. Jean Bourgogne discusses the northern limits of *Saturnia pyri* Schiff. in France; P. C. Rouget recounts the capture of a female *Nudaurelia boubieri* le Mout., an Attacid moth from Ethiopia. Jean Suire lists 29 *Coleophora* species from localities not mentioned in the Lhomme catalogue, while H. de Lesse records *Erebia hispania rondoui* Obth. from the Basses Pyrénées and H. Descimon records this species and other *Erebia* spp. in the central and eastern Pyrenees. Marcel Laine cites an instance of a dormouse persistently taking lepidoptera attracted to a lighted window as they climbed to the top of a lean-to above the window, and H. Marion continues his revision of the French Pyraustidae, dealing this time with *Scoparia* spp.

S. N. A. J.

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ERRATA—page 148, line 22, *delete not before* conditioned; page 163, line 35, *for stripped read striped*; page 164, line 34, *for sleight read slight*; page 164, line 3 from foot, *for peculiar read small*.

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Our Treasurer, Mr. A. C. R. Redgrave, has now moved from Bournemouth to Gloucester and is able to take up his work for the *Record* again. Will subscribers please note that his new address is:—7 Woods Orchard Road, Tuffley, Gloucester.

Mr. Allan has retired from the managership but will do his best to make up the magazine every month. We ask the indulgence of our subscribers if publication is occasionally a little late.

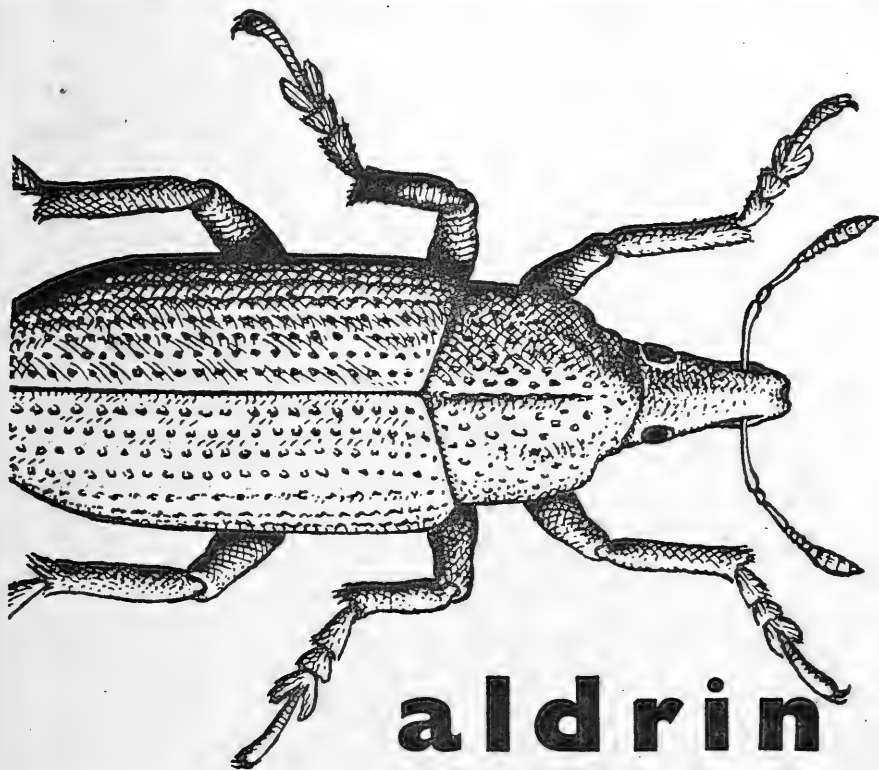
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## EXCHANGES AND WANTS

*Cambridgeshire Lepidoptera*.—Records wanted for new County list in preparation. Butterflies, Pyralids and all Chippenham fen records particularly wanted. Full acknowledgment will be given.—*Brian O. C. Gardiner, 43 Woodlark Road, Cambridge.*

*Wanted*.—An examination of the Coleoptera section of the General Science Museum at Merchant's Taylors School shows that there are a great many gaps in it. Can any Coleopterist readers of the *Record* assist by sending some of their duplicates?—*G. Lucas, 17 Munden Grove, North Watford, Hertfordshire.*

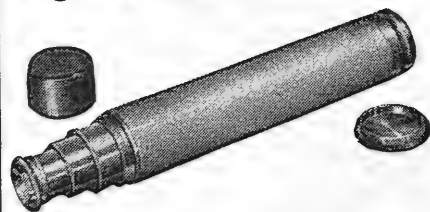
*For Sale*.—Light trap, 22 yards flex, choke, two lamps, connection to electric supply. £7.—*E. Harrison, 53 Borrowdale Road, Lancaster.*

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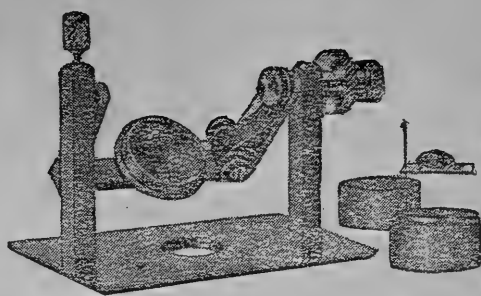
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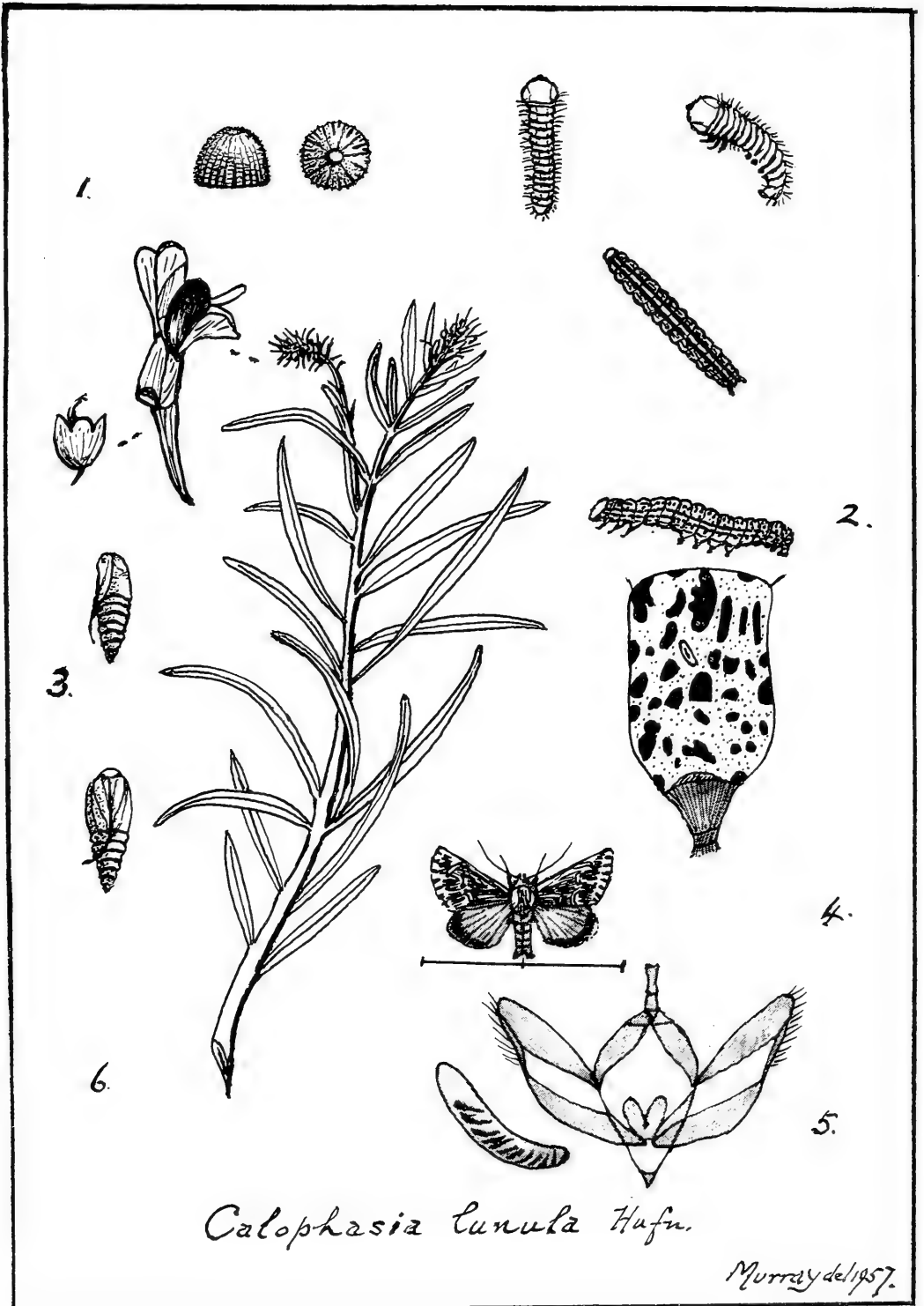
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# The Life-History of *Calophasia Lunula* (Hufn.)

By The Rev. DESMOND P. MURRAY

This new coloniser was first found on the S.E. coast in 1952, although there were some unconfirmed earlier records; since then it has been found in a number of places on the E. and S.E. coast districts. Perhaps it was overlooked because the larva resembles very closely that of *Pieris brassicae*. A number of correspondents in the *Ent. Record* (Vol. 67 and 68) have given some helpful notes on the breeding of this new moth. It has been known under the name of the Flax-moth, but perhaps a better name would be the Toadflax Shears, as there is considerable resemblance to *Hada nana* Hufn. (*dentina* Esp.) the Shears and the genitalia also show affinity.

The moth is found commonly in Central Europe.

As the life-history has not so far been fully described or figured, the accompanying notes and line-drawing should be helpful to collectors. I am indebted to Mr. D. Tozer of Leicester for material of the early stages.

(1) *The Eggs*: are laid singly on the leaf or buds of the food-plant, the young larva boring into the new growth. They are glossy-white in colour with a fine series of ridges meeting at the micropyle. They hatch in about two weeks.

(2) *The Larva*: The first instar measures 1 mm., dull white in colour with short setae. It goes through four instars.

At full growth the larva measures about 35 mm., pearly white in colour, with yellow longitudinal, dorsal and lateral lines, and irregular black transverse spots. It prefers the flowers and is a slow feeder but reaches near maturity without much difficulty, enjoying to bask in the sunshine. At this stage, when about to pupate, most breeders have found that it finds difficulty in pupation; one by one the larvae die off, without succeeding in making a web or choosing a suitable habitation. Perhaps the cause is want of sufficient warmth or moisture. The peak period for full grown larva is between the middle and end of June.

(3) *The Pupa*: is light brown, measuring about 15 mm., the tongue-sheath is partly free, generally found at the base of the plant in a thin but tough cocoon or in captivity hidden within a piece of crinkled-paper; this has been found by a number to be the most favoured position. It has also been recorded to pupate amongst the dried-up calyxes of the plant.

(4) *The Imago*: The antennae are simple in both sexes and these do not differ in colouring, the female being perhaps slightly larger. The fore-wings are rusty-brown, varied with pale grey in the basal and marginal areas, with a series of black dashes at the margin of the wings, the fringes being broadly intersected with dull white. The stigmata are distinctly white. The hind-wings are dull white with a brown margin. The moth appears from about mid-June to mid-September, so is often double-brooded. In the summer it emerges after about six weeks; the second brood passing the winter in the pupa state.

Larvae therefore are likely to be found any time between May and September.

On emergence the wings expand very rapidly, one writer says, but others have noticed this. I expect this depends a good deal on temperature and moisture.

(5) *The Genitalia*: The valves are oblong-shaped, rounded at apex; the uncus long, tongue-shaped; the apex of the tegumen pointed; the aedoeagus broad with a series of strong vesica.

(6) *Food-plants*: *Linaria vulgaris* L., Yellow Toadflax, other species of *Linaria* have been used as a substitute as *L. Cymbalaria*, Ivy-leaved Toadflax.

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#### EXPLANATION OF PLATE VII

- (1) Egg  $\times 12$ .
  - (2) Larva, 1st instar  $\times 20$ . Same at full growth 36 mm. dorsal and lateral view. 8th seg. greatly enlarged.
  - (3) Pupa 15 mm.
  - (4) Imago  $\sigma$  28 mm.
  - (5) Genitalia  $\sigma$ .
  - (6) Food-plant. *Linaria vulgaris* L. Yellow Toadflax with single flower and seed vessel.
- 

## A Visit to the French Pyrenees and North Spain, July 1958

By S. N. A. JACOBS

Our visit to the continent this year extended from 9th to 30th July, and our journey lay southwards to the Pyrenees, along the range, and through into Spain on the Costa Brava, including a week at Cauterets and a week at Calella de Palafrugell.

The journey was simplified by flying from Lydd to Le Touquet, and our southward road lay through Abbeville, Rouen and Le Mans to Saumur on the first day, say 302 miles, and the next day, on through Limoges, Périgeux, Bergerac and Marmande to Monte de Marsan, another 300 miles. This part of the journey constituted the main part of the travelling with an eye to entomology only at halts for rest or food.

Little of interest was seen, the principal butterfly being *Melanargia galatea* L., but next morning, I found, with regret, the mangled remains of a fresh female *Sesia apiformis* Clerck which had burst on hitting my headlamp. A search of the little black cherry bushes, locally known as *cérisoles*, for *Lithocolletis cerisolella* Joann. at our luncheon halt proved unsuccessful, an empty *Ornix* mine being the only trace of lepidoptera on this plant, which was plentiful on the border of the wood in whose shade we had halted. Odd specimens of *Polyommatus icarus* Rott., *Lycaena phlaeas* L., and *Maniola jurtina* L. were noted, but little else.

Leaving Mont de Marsan early on 11th, we set out for St. Jean de Luz to visit Mrs. Muspratt. After some searching we found her charming villa and enjoyed about half an hour's stimulating conversation with Mrs. Muspratt and her daughter. Had I been a skilled

shorthand writer, I would have been able to write "A Lepidopterist's guide to the obscure parts of the Pyrenees", so fully were the entomologically fruitful spots revealed to us; but alas, not having that skill, I could only make mental notes to be followed out on the map that evening. We left with the feeling of having been made very welcome by two ladies who had lived a very full life amongst the insects of this delightful corner of the world. Mrs. Muspratt had been out collecting with two young girls from St. Jean only a fortnight before our visit, and it was a joy to be infected with some of her vitality.

On leaving St. Jean de Luz we made an easy journey eastwards by way of St. Jean Pied du Port to Mauleron where we spent the night at a fine old coaching inn with the customary good table of the Basque country. The next morning we set out, again at a leisurely pace, for Cauterets, where we were fortunate in finding accommodation in the hotel which we had previously used. Here we stayed six days, and included a day visit to the Cirque de Gavarnie, a wonderful natural amphitheatre cut into the Pyrenees, laced with many beautiful waterfalls. Mrs. Muspratt had indicated high valleys running from the Cirque where many interesting butterflies were to be found, but, to our shame, we contented ourselves with working the Cirque itself. This was interesting enough, both as regards insects and plants, though it was disappointing to find that the beautiful Spanish Iris of the district was not yet out. I was delighted, however, to find *Ramondia pyrenaica*, a lovely alpine, which only thrives on the vertical face of a rock sheltered both from rain and sun. On such a rock I found about a dozen plants, so I did not feel unduly guilty about bringing one home in the ever-useful polythene bag. In this respect, I would remind those interested that it is illegal to bring plants into England without a permit, which can be obtained from the Ministry of Agriculture. This plant is composed of an elegant rosette of slightly hairy leaves, throwing up short stems carrying an orange-centred bluish purple flower about an inch in diameter.

The road to the Cirque is trodden many times daily by the hundred or more mules and ponies, not to mention the odd donkey or two, the hiring of which would seem to be the main business of the little village of Gavarnie, for those in too much of a hurry to make the journey on foot and those lacking the necessary energy, and the path is rendered dusty and smelly by the passage of so many beasts. This very dust, enriched by the desiccated dung however, was much appreciated by literally thousands of *Cupido minimus* Fuessl. all along the five kilometres to the Cirque. On the more open parts, *Melitaea* species were fairly plentiful, and *Cyaniris semiargus* Rott., *Celastrina argiolus* L. and *P. icarus* Rott. were noted, while *Erebia* species were well in evidence. *Colias* and *Gonepteryx rhamni* were also noted, and also a pair of *Parnassius apollo* L. The customary alpine pyraloids, *Pyrausta rhododendronalis* and *P. alpinalis* Schiff. were plentiful.

In the cirque itself, a nice series of *Endothenia scoriana* Guen. was taken, while a very thrilling burnet with a yellow collar and red-banded abdomen (possibly *Anthocharis anthyllidis* B.) was flying fairly freely. We were somewhat puzzled to see *Macroglossum stellatarum* L. extending its proboscis to the sun-baked faces of the rocks, although flowers were reasonably abundant, and later, at Calella, we saw an-

other of this species apparently ignoring the flowers but extending its proboscis to the hot stone wall of the hotel garden.

Wandering along the various footpaths up the mountain sides around Cauterets produced larvae of *Rhodaria purpuralis* L. in spun shoots of water mint, producing a very brightly coloured race of this lovely, though common, species. The feeding of *Coleophora ochrea* Haw. was very obvious on *Helianthemum* locally, but most of the cases found had already been discovered by birds, and the occupants extracted. Here *C. croceus* Fouch. was flying freely and an occasional *C. hyale* L. was also to be seen. *P. icarus* Rott. was fresh but numbers were not great, and various Satyridae were also fairly frequent. *Nemotois degeerella* L. was performing its graceful gnat-like dance in large numbers early in the day. Many crickets were noted on the side roads and a large number of mutilated corpses bore testimony to the activity of predators, probably birds.

A trip to the Lac de Gaubes was well repaid by the very pleasant lake and the green valley at its end. Butterflies were reasonably frequent and species much as were seen at Gavarnie were noted, with the addition of a very fine dark *Papilio machaon* L. seen on the out and home journeys in its own particular section of the path. Here, *C. minimus* Fuessl. was, if anything, more plentiful than at Gavarnie.

From Cauterets, we set out for Perpignan where we turned southwards, crossing the Spanish frontier for Calella de Palafrugell. The road to Perpignan lay by way of Foix, a compact little country town overlooked by its fortified castle, complete with round towers in the fairy-tale tradition, and the subject, this year, of a Son et Lumière programme nightly. From Foix the road runs through wooded hills to Quillan and then enters a wide arid valley with rocky cliffs on either side, and bamboo hedges which gave a foretaste of northern Spain. After passing through Perpignan we crossed the frontier into Spain at La Junquera and struck south along the Barcelona road, turning left just short of Gerona, along the twenty kilometres of very mixed second class road, through La Bisbal to Palafrugell, and then, after much questioning with no knowledge of the Spanish language, we completed the final two kilometres to Calella. Our difficulty arose mainly from our being unused to the Spanish byways, for an important road may suddenly change from a good tarred surface to a dust track, only to resume its good surface just out of sight round the corner. After a day or two one gets used to this and watches for surface changes. Potholes after a long stretch of excellent surface are perhaps the most disconcerting of the changes; one can see a dust bath well ahead and slow down in time, but watching approaching traffic may cause one to miss seeing a large pothole until it is too late for evasive action.

We had written to the hotel from Cauterets, and although we had received no reply, we were accommodated in the only available room in the semi-basement of a newly finished wing. We were the first occupants, and the walls and floor were still sweating; however, on the second day the hot water system came into operation and we were then reasonably comfortable.

The surroundings of the hotel were mainly cork forest, and the stunted cork oaks (*Quercus suber*) with the smooth brown trunks which



had been stripped, and the rough-barked branches, formed the main feature of the land. They were interspersed with occasional Spanish pines, which have a curious growing habit of a clean trunk with an almost spherical mass of branches at the top. Small areas had been planted with pines alone. Undergrowth was not much in evidence, but there was a prickly broom, occasional *Ulex*, and a creeping plant with heart-shaped leaves like briony, and rose-like thorns along the tough slender stems, which were not good for the net.

The moon was new on our arrival and we had two evenings with the Vidor lamp and sheet before the moon began setting too late to make lamp work worth while. *Argyroplote profundana* Fab. and *A. corticana* Schiff. were the commonest insects, but on the second evening, a good series of *Symmoca* ? *oenophila* Staud. was taken. The only large moth visiting the sheet was a handsome *Catocala* with yellow hindwings, possibly *hymenaea* Schiff., but *Cosymbia* ? *pupillaria* came fairly freely. We were surprised, in this woodland biotope, by the advent of two *Pyrallis farinalis* L. to the sheet. By day, the large and thrilling *Satyrus circe* was to be seen settling on the oak trunks between its graceful soaring flights, and on one day, *Thecla quercus* L. was flying round the cork oaks in numbers, six to a dozen to a tree, but on no other day did we notice more than three or four in the course of a walk. *M. jurtina*, and the small skippers, with occasional *Colias* and Pierids made up the butterfly fauna noted, though on two occasions *Pyrameis cardui* L. was seen.

The coast was always delightful, the heat being tempered by a cooling breeze from the sea, and bathing in the very clear water was refreshing and enjoyable.

We made an expedition to Ampurias, about twenty miles to the north, where the remains of this early Graeco-Roman seaport have been excavated and preserved. The landward side of the town is dominated by a large villa and some slightly smaller dwellings, with well preserved mosaic floors, and we were much intrigued by the very well formed garbage chutes between each room and the *cloaca* or drain surrounding the large villa. The contents of the *cloaca* would flow to the sea via the lower town, and what the plebians of the lower town thought of this can be left to the imagination. Beside the houses of the lower town was a large temple site, sacred to Aesculapius, with a large statue of the medical gentleman, complete with the remains of his serpent. To the east of the town was the communal burial ground, where corpses of note were roofed in by large tiles forming a ridge roof, and an early christian church had been added at a later date, in which coffins for the dignitaries, carved out of solid stone, with carved stone lids, were to be seen. The remains of the sea wall, some eighteen feet high and probably sixty feet long, mark the harbour where the Phoenician merchant vessels used to lie. Since the building of this harbour, silt from the two rivers discharging in the bay has all but joined the harbour to the sand dunes, and the water now no more than laps round the bottom of the sea wall. The landward side of the dunes is planted with a thicket of oleanders, while the seaward side is artificially bound with various grasses, from bamboo to esparto, and on this seaward side, we found growing a strange plant of the daffodil family; it was paper white, the flowers being of con-

ventional daffodil shape and size, but were borne at the end of a normal daffodil stem, in clusters of three, four or five blooms. Mr. T. R. Eagles suggests that it is *Pancratium maritimum*, the sea daffodil.

After our week at Calella, we set out for home by easy stages and certain detours. Firstly we took the long loop west from Perpignan, via Mont St. Louis and Bourg Madame over the Puy Morens pass, by the frontier of Andorra and on to Ax les Thermes for the night. On the way up the Puy Morens, the alpine flowers, especially *Dianthus* species, were making a good show, but a strongish cool wind kept the insects down. The next day we left for Foix once more, and thence turned north through Toulouse and Montauban to Cahors, the home of the late Leon Lhomme. Here we made a sentimental detour to Cabrerets, where we had spent a very enjoyable week eight years ago, which Lhomme had arranged for us just before his untimely death. While in the village, we also visited l'Abbé Limossi, the antiquarian, who had done so much towards the opening of the Pech Merle caves with their most interesting wall and ceiling drawings and evidence of human habitation in the district. We returned to the main road at Souillac and went on to Brive for the night.

In the Cabrerets district, the butterflies did their best to revive the past glories of the place, and beside *Argynnis paphia* L., which was in fair numbers and very fresh, we noted *Papilio podalirius* L. and *P. machaon* L. beside the other species of Pieridae and Satyridae noted elsewhere.

Leaving Brive for Tulle, with the idea of a more easterly deviation, by a fortunate mischance, we missed our road, and after some miles of very tortuous road through lovely wooded hills with rich farmland between, we struck a secondary main road, little used by tourists, through most interesting country, including George Sand's chateau at Gargilesse, Indre, which was open to the public, and tours, under the guidance of Aurore Sand, granddaughter of George Sand, now in her nineties, covered the conventional living quarters, and also an interesting museum of books and drawings by members of the family. These included a large sign advertising a book on the Papillons de France by George Sand, backed by a Rothschild, a local list of the lepidoptera of the Indre and neighbouring departments, a butterfly book by Henri Sand, and another of odd insect drawings by him. There were also his illustrations, done at the age of nineteen, for the works of Balzac.

We passed on through Chateauroux to Valencay, where we spent the night, and in the morning visited the Chateau, which was the home of Taillierand Perigord, the genius of political sculduggery of the Third Empire, who distinguished himself at Vienna and again in London. An erstwhile orangery has been established as a museum of the statesman, and the apartments of the chateau are open for conducted tours. In the grounds peafowl breed, while in the fountain stood two flamingoes giving the place an Alice atmosphere and one looked about for a brace of hedgehogs to complete the scene. We crossed the Loire at Blois and made our way north through Rouen to Neufchatel for the night, and on to Le Touquet and home after a holiday which seemed to indicate the possibility that once more the insects were beginning to gain a little ground, and we had the feeling that

with a little more sunshine, we might again see years like the nineteen forties.

Our catch was not large, but certainly more insects were about than we had seen for several years, and we look forward to the winter for setting and determining the catch.

## Butterfly Hunting in Jugoslavia

By Major General C. G. LIPSCOMB

I see from my diary that my wife and I left our station in Germany by car on 14th May when in England the 'bus strike was a week old, a railway strike threatened, and other labour difficulties loomed ahead—abroad there was serious trouble in the Lebanon and France was without a government—all good reasons for getting away from newspapers and wireless for a bit!

We were heading for Jugoslavia for a three weeks holiday with the primary object of catching some of its fabulous trout and to see as much as we could of the people and country—a secondary object was to learn something at first hand of its entomological possibilities as far as its butterflies were concerned, and it is on this aspect of our trip that my article is based.

On our journey south it rained and snowed almost incessantly till we left the Alps behind and dropped down into Italy. Here the weather changed abruptly for the better, the sun came out and shone from a cloudless sky, and it was really hot at last. We took the road via Udine to Trieste across flat country where haymaking was in full swing but where I could see little evidence of entomological activity.

On the 18th we reached Trieste where we spent a hot and noisy night. The following day, after some last minute shopping, we took the Basovizzo road to the frontier—we had been told that the Yugoslav customs authorities could be difficult, but we did not find this so and with German as our only common language our baggage was soon cleared.

Our road now lay south-east across the base of the Istrian peninsula and we made our first stop in the shade of some wayside trees a few miles over the boundary. Here the landscape was broken by rugged limestone hills and what level ground there was was dotted with shrubs and supported a wealth of flowers, only patches of soil at the bottom of depressions being cultivated. Almost the first butterfly I saw was a fine *I. podalirius* L., and it gave me a good view as it sailed round some bushes. Later we saw others, and quickly realized why its German name is 'sigelfalter', the sail butterfly. *Cupido minimus* Fuessl. were also in evidence together with the odd *Colias australis* Verity, attracted no doubt by the large masses of *H. comosa* that were in full bloom.

We rejoined the coast near Opatija and from there on followed the magnificent metalled road that hugs the shore line as far as Senj. Here it abruptly comes to an end and we took to the dusty unmetalled track that leads south-eastwards over the hills to Otačac, some twenty-five miles inland and near here we made our first fishing camp on the river Gacka. Many Yugoslav rivers do funny things, and this particular one was no exception as it gushed out from a huge spring at the base

of a hillside from which it flowed away 20 yards or more wide. After some 15 miles, it tumbled over a cliff into a lake from which there was no visible outlet. However, it was full of fish and for the next week they had our almost undivided attention. The meadows which flanked the river were full of flowers, among which a lovely blue hyacinth predominated but there were no butterflies to be seen apart from *Leptidea sinapis* L. and a few *Polyommatus icarus* Rott. The weather during this period, and in fact for the whole of our time in the country, was very hot indeed, with a daily shade temperature well up in the eighties. If it had been cooler I might have felt inclined to tackle some of the rough hillsides that flanked our valley to see what they could produce, but as it was, we were more concerned with finding patches of shade to sit in during the heat of the day.

Life for the local inhabitants was very primitive and their whole economy was based on the ox cart and the animal that drew it. By our standards they are desperately poor, but in spite of this are a proud, fine looking and cheerful lot of people and we quickly grew very fond of them in spite of the fact that our only common language was very indifferent German on both sides. On the 23rd we made a sight seeing trip to the Plitvice lakes in the Yugoslav national park. This is a well wooded area of limestone hills through which runs a wonderful chain of lakes, connected by a series of waterfalls. Unfortunately our arrival coincided with a series of thunder storms and we were able to see little of the local possibilities although we did come across a stream where some hard work with our sleeves and trousers rolled up produced a fine bag of crayfish which made a welcome addition to our supper that evening.

On the 26th, we moved our camp to the river Una travelling via Gospic to Sučevici, where we turned north and finally found a camping site on the river near a village which rejoiced in the name of Srb. The road led through wild partly wooded country, but although we made several stops en route, nothing of interest materialized excepting a single ♂ *Argynnis euphenoides* Stgr. and *Melitaea cinxia* L. in some numbers—*Podalirius* was particularly numerous in this locality and on one occasion I counted no less than six in a cluster on a patch of earth where a horse had recently staled. Here too I saw the first *P. machaon* L. and *Colias croceus* Fourc. form *helice* Hbn. On the 28th we explored the road further to the north and lunched on the high ground a few miles short of Bihac where the country was open and largely cultivated. *Lysandra bellargus* Rott. was in some numbers, and another large blue, encountered for the first time, that had all the characteristics of *Glaucopsyche alexis* Poda except that the ♀♀ were uniformly brown on the upper side with no sign of blue scaling as is shown in the illustration in *Die Schmetterlinge Mitteleuropas* by Forster and Wohlfahrt: *australis* and *cinxia* were both common and very fresh.

We decided about now that it was time we spent a day or two on the coast, particularly as neither of us could any longer look a trout in the face at meal times. Accordingly on the 29th we moved to a delightful camping site in a fertile valley near Obravac at the head of an almost land-locked bay, and where the sea was warm and most inviting. Our route had led us via Knin, a fast developing new town, and then south-west for many miles through a desolate waste of rocks

and sparse scrub that seemed to support little in the way of animal or insect life; so the finding of the valley and camping site made a most pleasant surprise.

Our nearest neighbours were the occupants of the ancient monastery of Franjevački Samostan Svete Marija, with parts of the building going back to Roman times. The day after we arrived I went to pay my respects to the worthy monks, with the hope that I could at the same time replenish our supply of drinking water and wine. I got a very warm welcome and was successful in both my ulterior objects. While walking through the cloisters and chatting to my hosts, I noticed a large pupa that I was unable to recognize, suspended from an archway, I detached it with a surreptitious tug and eventually, when I got back to camp, placed it in a pill box. A few days later when I again looked at it I found a fine *Nymphalis polychloros* L. had just emerged. The hillsides near our camp proved to be quite productive; the big blue *Polyommatus escheri* Hubn. was common and well out in both sexes, *cinzia* was plentiful and *Melitaea didyma lesora* Furrst., *Pyrgus orbifer* Hbn., *Polyommatus eros* O., *Strymon spini* Fabr. were all represented while our breakfast on the second morning was enlivened by a very large and perfect *machaon* which came and sat on the ground beside our table. Several specimens of *Limenitis rivularis* Scop. were almost certainly seen but I was unable to capture one for positive identification in the steep rocky gully where they were flying.

On the 31st we motored to Zara (Zadar), an attractive seaside town that caters for the tourist traffic. We had ideas of trying to get further south down the coastal road, but after a mile or two the dust and poor surface made us give up the attempt and we realized not for the first time that although a road may be marked as first class on a Yugoslav map this seems to refer to its width and bears little or no relation to its surface! We retraced our steps, making a detour via Benkovac, where some ancient ruins, that we thought might prove interesting, were marked on the map. In effect our road took us through very dull country and a stop for a picnic lunch at a likely looking spot produced nothing of entomological interest. The ruins too were disappointing, with little left above ground level to show what they had once represented. This was evidently not one of our better days because when we returned to our camp late in the afternoon we found a policeman in occupation. We neither of us could understand a word the other said, but by dint of drawing his hand across his throat while at the same time seizing one of our more portable possessions and pretending to run away with it, he indicated beyond a shadow of doubt that this was not considered the most healthy of neighbourhoods. No form of persuasion had any effect as his only reply was to write the day's date in the dust on the bonnet of the car and then jerk his thumb over his shoulder. We in no way subscribed to his fears, but not wishing to make any unpleasantness decided he had won and indicated we agreed to depart. We shook hands and parted the best of friends.

After a short consultation we decided to go back to Otočac, and within half an hour, after a final bathe, were packed up and on our way. We chose the shortest route, which took us by a bye-road over the coastal range of hills near Mount Halan, a fine limestone massif. The road, which climbed some 3,000 feet in five miles, proved to be

a wonderful piece of engineering while the scenery was superb with the rays of the setting sun reflected off the surrounding limestone crags. Once over the top of the pass we wound our way down through a thick forest of beech and oak which eventually gave way to more open country. Here, just before the light went, we pitched our tent and cooked our supper. It had been such a wonderful drive that we felt grateful to the policeman who had hastened our departure. The following morning I explored our immediate surroundings and found that *Plebejus argus* L. ssp. *cleomenes* Furst. was well out and very numerous. The wide black borders on the ♂♂ make it a most attractive insect; *cinxia* was the only fritillary I saw and it was both plentiful and fresh. Soon after breakfast, we were on our way again and ate our lunch on the high ground west of Gospić and here I found a single worn *Boloria euphrosyne* L., a somewhat surprising discovery while *bellargus* and *Polyommatus semiargus* Rott. and *minimus* were present in numbers particularly where they clustered in tight bunches on patches of wet mud by the edge of a wayside pond.

Back at Otačac we found that *Aporia crataegi* L. had emerged in our absence and was common in the meadows where it could be seen at rest on the grass heads in the evening. A fresh brood of *Vanessa cardui* L. was also appearing with their numbers increasing daily. Also in our absence the locals had successfully tracked down and shot a large bear that had killed several of their cattle. We were told it had weighed 300 kg. This last bit of news made me feel I had done the right thing by being content to sit in the shade during our previous visit and not to go scouring the surrounding hills armed only with a butterfly net! On 3rd June we paid a return visit to the Plitvice national park, but although the day was brilliantly fine there was little to be seen except some rather worn *euphrosyne* and a few early *Limenitis camilla* L. and *Scolitantides orion* Pall., a blue that I had not come across before.

On the 4th we left for Slovenia calling first at Senj to collect our mail. Near the post office was a lime tree in full bloom, and I noticed a number of large rich brown butterflies taking advantage of this feast. They were well out of reach but a careful examination by field glasses showed them to be *Polygonia egea* Cr., very similar in many ways to our own more familiar *c-album* L. Later, when we were lunching on the beach a few miles up the coast, another very fresh one settled for a few moments beside us. In the same place we also saw several specimens of that large skipper, *Pyrgus sidae* Esp., the pale yellow bands on the underside of the hindwings making them readily distinguishable from other members of the *Pyrgus* family.

That night, we pitched our tent on the banks of the river Uneca some six miles north of Postojna. It was a lovely spot, and the country side in this northern part of Yugoslavia was much more civilized and far less rugged. Well kept woods alternated with flowery hillsides and grassy meadows. I was not therefore altogether surprised the following day to find a bank bordering on extensive woodland near our camp simply alive with butterflies: *Didyma lesna* was the commonest of the fritillaries and the bright red brown ♂♂ were in marked contrast to the larger and more sombre ♀♀ which varied greatly in the intensity of their dark markings, some being very black while others had almost

a grey appearance. *Melitaea britomartis* Assm. and *M. athalia* Rott. were just coming out, while the ubiquitous *cinxia* were here well past their best. There may well have been other *Melitaea* species present, especially as several of them look terribly alike and are not easy to distinguish in the field. *Bellargus* was particularly common but I was not able to find any tendency to vary and all the ♀♀ I examined were uniformly brown. *Erebia medusa brigobanna* Fruh. was common but worn as also was *Nemeobius lucina* L.—*Coenonympha arcania* L. favoured the edge of the woodland where it was plentiful and very fresh. A single *Parnassius mnemosyne* ssp. *hartmanni* Stndfs. was a rather surprising capture and must have wandered some way from its usual haunts: *crataegi*, *hyale*, *croceus*, *Hemaris tityus subalpina* Speyer, and a single *Lycaena hippothoe* L. completed the picture of this delightful spot.

On the 8th we were on the move again, this time making for Bled taking a bye-road that skirted Ljubljana. A strong colony of *M. aurinia* Rott. was found at a halt in some open woodland and at lunch on the banks of a tributary of the river Sava *Lycaena argester* Bergstr. was found flying in some numbers with the other blues already noted on previous occasions.

Bled is very much a show place with its lovely lake and castle perched high above its placid surface, while in the background on all sides are the towering mountains of the Julian Alps. We made for the official camping site at the bottom end of the lake and pitched our camp for the last time in Jugoslavia. A walk in the late afternoon produced a very fresh *Argynnis niobe* f. *eris* Meig., but otherwise we turned up nothing new. The following day, with many regrets, we took the road to the Loibl pass and were soon back in the comparative civilization of Austria.

Köln, 8.vii.1958.

## New Diptera records for Lancashire, Yorkshire, and Westmorland

By ALLAN BRINDLE, F.R.E.S.

The following notes concern species of Diptera which have not been previously recorded from the counties mentioned. (Lancs.—VC 59, 60; Yorks.—VC 63, 64; Westmorland and N. Lancs.—VC 69.) The species marked \* are not recorded from the county referred to in Coe, Freeman, and Mattingley (1950).

### TIPULIDAE

\**Tipula couckeii* Tonn. VC 59, Whalley, 4.5.1952; Sabden, 16.6.1954.

This species appears to be more common than supposed. Its close resemblance to the common *T. lateralis* Mg. has caused it to be overlooked in the district in the past. It occurs from May to July along the banks of rivers, in the soil of which the larvae are found. The latter have been reared several times in the past few years.

\**Helius flavus* (Walk.). VC 59, Mitton, 3.7.1952. VC 60, Hawes Water, 29.6.1954. VC 69, Witherslack, 5.7.1957. This species often occurs along with the more common *H. longirostris* (Mg.)

in marshes, but appears to have a slightly later time of appearance. The larvae occur in marshy soil.

- \**Dicranota robusta* Lundst. VC 59, Pendle, 4.5.1952; Whalley, 15.4.1956. This small species occurs along the banks of stony streams and rivers. It is usually found resting on the stones by the edge, often underneath, and does not fly readily. It is therefore easily overlooked, and the first specimens were found whilst searching the stones for stoneflies. The height of Ogden Clough, Pendle, is between 800-1000 ft. above sea level, and considering the only other British record from the Goyt Valley, Cheshire, it was thought that it must be an upland species, but subsequent search found the species at Whalley, not more than 400 ft. in elevation.
- \**Hexatoma fuscipennis* (Curt.). VC 64, Whitewell, 29.6.1952. This species occurs along with *H. bicolor* (Mg.) along the banks of the river Hodder but is later in appearance. The larvae are found in numbers, prior to pupation, in the sand by the river's edge.
- \**Limnophila abdominalis* Staeg. VC 69, Witherslack, 8.6.1948. This species occurs in a woodland marsh together with *L. glabricula* (Mg.) but appears to be scarcer than the latter.
- \**Erioptera squalida* Loew. VC 60, Storr's Moss, Silverdale, 2.7.1957; Hawes Water, 3.8.1954. Not uncommon in marshes, and is readily distinguished from *E. flavescens* (L.) by the brownish colour of the insect.

#### TRICHO CERIDAE

- \**Diazosma hirtipenne* (Sieb.). VC 63, Elslack. One specimen of this rare species was caught flying near a moorland wood on 22.7.1939. Rather like a large *Trichocera annulata* (Mg.) but distinct by reason of venation and the conspicuously hairy wing veins.

#### ANISOPODIDAE

- \**Anisopus zetterstedti* Edw. VC 59, Whalley, 31.8.1952, 9.7.1954. Whilst examining a number of *Anisopus* species taken in woodland near Whalley in an endeavour to find *A. cinctus* (F.), a specimen of the present species was found. Subsequent collecting secured a second specimen, and it appears to be established, though not common.

#### STRATIOMYIDAE

- Stratiomys potamida* (Mg.). VC 59, Twiston, 18.6.1954 (reared). In a survey of the larval inhabitants of a small area of moorland marsh, a number of *Stratiomys* larvae were found. When reared these proved to be the present species, and they have been reared in successive years. It appears to be a most unlikely habitat, at an altitude of over 1000 ft. on a rough moor of *Nardus*. Sweeping and searching flowers have failed to bring to light any adults, but the larvae can be found in various stages almost throughout the year.

#### RHAGIONIDAE

- Spania nigra* Mg. VC 59, Thursden, 12.6.1949; Twiston, 12.6.1954;



Sabden, 13.6.1954. One specimen was taken at Thursden amongst a number of Diptera. Subsequent searching in marshes proved it to be locally common during a rather restricted flight period.

## EMPIDIDAE

*Orópezella sphenoptera* (Loew). VC 60, Hawes Water, 26.6.1954. Rather like a male *Ocydromia glabricula* (Fln.) but with clear wings, a few specimens were taken along with that species at Hawes Water in woodland.

## CLYTHIIDAE

*Opetia nigra* Mg. VC 60, Hawes Water, 26.6.1954. A small blackish fly, probably commoner than supposed, taken amongst other Diptera in woodland.

Reference: Coe, R. L., Freeman, P., and Mattingley, P. F., 1950. *Handbooks for the Identification of British Insects*. 9, Pt. 2. London.

27.1.1958.

86 Princess Street,  
Nelson, Lancs.

## The two Varieties of *Empis Tessellata* Fab. (Diptera Empididae) a problem

By B. R. LAURENCE

*Empis tessellata* is a large and easily recognised species of Empid which is common in Britain in the months of May and June. Two varieties of this species, mentioned by Lundbeck, 1910, *Diptera Danica*, Part III, are known to occur in this country and they can be distinguished by the leg colouration, one variety having all the femora extensively darkened, and the other having at least the posterior femora completely light brown, with the other femora darkened at the base beneath. Colyer and Hammond, 1951, *Flies of the British Isles*, give a figure on plate 33 of the dark legged variety of this species. The extent of the darkening of the posterior femora in the female of the dark legged form is somewhat variable, although even in extreme specimens the femora are obviously darkened towards the base and this darkening extends half-way along the posterior femora. In the field the pale legged form may be mistaken for a species like *Empis opaca* Mg., which has ferrugineous legs but which is smaller and has a different build. I am indebted to Mr. J. E. Collin who has supplied the following information:—“*E. tessellata* occurs from Scandinavia to North Africa, and a closely related species is found in Spain and North Africa. Becker says that the North African form of *tessellata* has entirely pale femora but, so far as I can trace, European pale legged specimens agree with yours in having the front femora and middle femora about the base beneath darkened. Zetterstedt stated that there were some districts where the pale legged form was not to be found and records it as local in Sweden and Denmark. Strobl also stated that he did not find in Styria the form with entirely pale legs and only the base of the coxae and underside of the front femora grey. He, however, records two other varieties, one with legs black but all tibiae reddish yellow, and another with the legs entirely black, at most the knees pitchy brown.” The pale legged variety in Britain appears to be the rarer of the two, and has been recorded from Bedfordshire (1949,

*Ent. mon. Mag.*, **85**: 23), Buckinghamshire (Parmenter, 1951, *Ent. mon. Mag.*, **87**: 41) and Hampshire (Smith, 1952, *J. Soc. Brit. Ent.*, **4**: 90).

Both forms of *Empis tessellata* are found in an area of about half a square mile at Fancott in Bedfordshire. This area has been described in an account of the Syrphidae present (1950, *Ent. mon. Mag.*, **86**: 351), and also the Tipulidae and Stratiomyidae (1951, *Ent. Rec.*, **63**: 95). Since 1947 a consistent difference has been found in the distribution of the dark legged and the pale legged forms of *E. tessellata* but, since 1952, it has been difficult to record the numbers of flies present in the area. Although known to be a predator on other insects, *Empis tessellata* feeds readily on flowers such as those of *Anthriscus sylvestris* Hoffm. and *Heracleum sphondylium* L., as well as others (see Parmenter, 1951, *Ent. mon. Mag.*, **87**: 41). At Fancott, up to 1952, masses of *Anthriscus*, and later in the year *Heracleum*, flowered along the hedgerows and in open spaces within the woods, and in both situations the flowers supported large numbers of the Empid. This species is difficult to disturb when it is feeding on the flowers and it is possible, especially when the flies are on plants of the height of the Umbellifers, to count the numbers of the Empids on the flowers. This was first done in 1947 in one of the two deciduous woods in the area, Woodcock Wood, and the numbers of each form and the sex ratio could be recorded without greatly disturbing the flies. Both pale and dark legged forms of the Empid were present in the wood. The Empid was also common on *Anthriscus* along a hedgerow between two arable fields but, here, only the dark legged form was present. Further investigations in the same year, in 1948 and in the following years, have shown that, although the pale legged form is common inside the woodland, it is very rare outside the two woods studied (Woodcock Wood and Hipsey Spinney). Unfortunately, since 1952, the woods have become more dense and overgrown and the patches of Umbellifer on which the Empids were common before have been reduced in size. As a result it has been impossible in recent years to find sufficient Empids in the woods to make counts of them worthwhile (see Table 1). The results are published here in the hope that this account may stimulate investigation of the problem in other parts of the country.

TABLE 1. The numbers of the two varieties of *Empis tessellata* F. found within woodland and outside.

Year	Woods				Outside woodland			
	Pale legged		Dark legged		Pale legged		Dark legged	
	♂ ♂	♀ ♀	♂ ♂	♀ ♀	♂ ♂	♀ ♀	♂ ♂	♀ ♀
1947	14	55	22	55	1	3	34	
1948	99	150	34	77	8	2	34	49
1949	39	32	23	26	—	—	2	—
1952	63	115	42	78	—	4	18	44
1956	present		present		not found		present	
1958	2	4	8	6	—	—	4	4
Total	217	356	129	242	9	9	58	97
							+ 34 ♂ ♀ ♀	

The method used to record the numbers of the Empids was to take about four consecutive, or nearly consecutive, counts of the flies on any accessible discrete patch of Umbellifer. These counts usually showed that the Empids have been little disturbed by the counting and the differences found between counts are due to normal arrival and departure of the flies on the flowers. As there is little point in averaging a series of counts, especially when only one form is present, the highest number of each sex of each form has been taken as representing the number present. The counts from each separate area of Umbellifer have been collected together under each major locality—such as the woods Hipsey Spinney and Woodcock Wood—and the results of these counts are summarised in Table 1.

Both the woods are mixed deciduous woods, and the proportions of the two forms in the two woods on the same days were approximately the same: Woodcock Wood—1·3 pale legged: 1·0 dark legged; Hipsey Spinney—1·5 pale legged: 1·0 dark legged. Both forms have been found in the woods in the years 1947 to 1958. The preponderance of the pale legged form within the woods is in contrast to its rarity outside along the hedgerows: 0·1 pale legged: 1·0 dark legged. Three main masses of Umbellifer were visited outside the woods and most of the pale legged specimens found away from the woodland were found at the locality nearest, and between, the two woods. Along the hedgerow connecting the woods, 70 yards from the nearest wood, the numbers of pale legged to dark were 8:9; along a hedgerow 130-600 yards from Hipsey Spinney the numbers were 7:82; and along a hedgerow in Fancott village, 400-700 yards from Woodcock Wood, the numbers were 2:86.

This difference between the two forms in leg colouration may be due to differences in the early larval environment. The life history is not known, although Lundbeck found the larvae in mole hills. No larvae or pupae have been found in the mole hills at Fancott during the emergence period, but a single freshly emerged pale legged female was found in the middle of Hipsey Spinney in May. When the larval habitat has been discovered it will be interesting to see in what proportions the two forms are bred out. It is possible that the dryer, less shady climate outside the woodland may in some way induce the darkening of the legs but, if this were so, one would expect the variation in leg colouration to be continuous between the two forms, whereas they appear to be distinct. It does not seem likely that the difference in leg colouration is due to a difference in age, as females of both forms have been found with their abdomens full of eggs. The adults of both forms have died quickly in captivity. If the difference in leg colouration is inherited then this external difference appears to be associated with some difference in the physiology of the pale legged form which prevents it being successful outside woodland. Mating swarms, as described by Hamm (1909, *Ent. mon. Mag.*, 45: 157) have not been observed in this area. Occasional mated pairs, or males, flying or resting on shrubs with prey have been found along the hedgerows, and these have all belonged to the dark legged variety. In the woodland only one mated dark legged pair has been taken, although large male Empids have been seen flying around bushes at a height of about 12 feet apparently looking for prey. In the woodland mating may take place at some height above the ground. Should mating swarms be observed it is obviously

important that they should be examined closely to see if mating is selective. But, at present, this variation in leg colouration, associated as it is with an apparent difference in behaviour, remains a problem.

## The Moths of Parley Cross, Dorset. II

(Being Extracts from the Diaries of the late Dr. HAROLD KING,  
C.B.E., D.Sc., F.R.S.)

Edited by H. SYMES

(Continued from page 104)

### GEOMETRIDAE

Of the 78 species of Geometridae included in the list that follows 45 were recorded only at m.v. light and 12 did not come to this attraction. There were 21 species of which only a single specimen was seen and three more were recorded only once, though not as singletons.

Dr. King took a great interest in the "pugs", and was particularly pleased to find *Eupithecia intricata* Zett. ssp. *arceuthata* Frr. well established in his garden, because he had studied this insect in his garden at Mill Hill in former years. At Parley he first took it on 28th June 1951, when he netted two at dusk. In August and September that year he beat a number of larvae from his *Cupressus macrocarpa* hedge, and on 24th June 1953 he watched a female ovipositing there. In 1954 and 1955 the moth came in considerable numbers to his m.v. light.

It was a great satisfaction to Dr. King to add a 'pug' (*Eupithecia plumbeolata* Haw.) to the Dorset list (*Ent. Rec.*, 65: 292). He did not actually take it at Parley, where the foodplant, cow-wheat (*Melampyrum pratense* L.) does not grow, but in Holt Forest, at a spot less than six miles north of Parley. Here, on 22nd July 1952, he found in "an armful of cow-wheat" "two stumpy larvae nearly full grown which fitted the description and pictures of the larva of *E. plumbeolata*". No imagines emerged, but on 31st May and 18th June 1953, Dr. King had the satisfaction of taking single specimens at dusk. In his diary for 18th June he writes: "At sunset arrived at Holt Wood. Took *plumbeolata* at dusk on wing flying in roadway near cow-wheat. Failed to find any more later with lamp". Incidentally, he also took this species at two localities in the New Forest in 1953: it does not appear in Fassnidge's list for this area.

There are some interesting dates in connection with *Eupithecia pumilata* Hb. Bred specimens emerged in March 1953, but although a wild one was seen in his garden on 12th May, they came to m.v. light commonly in June, July and August 1954 and 1955. There were three exceptional appearances: on 15th December 1955 one was found emerged in a box that had contained heather as food (Dr. King adds "Dietz gives *calluna* as a food plant"), a freshly emerged specimen was found on the kitchen wall on 1st February 1955, and on 29th January 1956 one was found on the front door. This was the very last entry in Dr. King's diary.

## GEOMETRIDAE

- Comibaena pustulata* Hufn. Six at m.v., July 1954.  
*Jodis lactearia* L. Common in 1954 and 1955 at m.v.  
*Hemithea aestivaria* Hb. (*strigata* Müll.). Common at m.v.  
*Sterrhia muricata* Hufn. Two: 11th and 14th July 1955.  
*S. seriata* Schr. 8.vii.1951 (at dusk in garden); 29.vi.1952; 14.ix.1953 (at light in porch); 26.vi.1954 and 18.viii.1954 at m.v.  
*S. silvestraria* Hb. Five in 1954, one in 1955.  
*S. fuscovenosa* Goeze. Eight in 1954, two in 1955.  
*S. subsericeata* Haw. Two: 30.viii.1952 with lamp on heath; 3.ix.1955 at m.v.  
*S. biselata* Hufn. Very common.  
*S. dimidiata* Hufn. Two: 29.vi.1952 at Tilley lamp; 6.vii.1954 at m.v.  
*S. trigeminata* Haw. Three in 1953, two in 1955.  
*Scopula floslactata* Haw. (*remutaria* Hb.). One: 5.vi.1951, in garden.  
*S. imitaria* Hb. One: 13.vii.1955.  
*Cosymbia punctaria* L. Four: 3.ix.1951, 26.viii.1954, 2.ix.1954, 1.ix.1955.  
*C. orbicularia* Hb. One: 15.v.1954.  
*C. albipuncta* Hufn. Four in 1954.  
*Ortholitha mucronata* Scop. Two: 2.viii.1954; 3.viii.1955.  
*Anaitis plagiata* L. One: 12.ix.1950.  
*A. efformata* Guen. Two: 22.viii.1955.  
*Acasis viretata* Hb. One: 16.vi.1951, at dusk in garden.  
*Chesias legatella* Schiff. (*spartiata* Hbst.). One at kitchen light, 20.x.1950; five at porch light, 1953; four at m.v., October 1954.  
*Lobophora halterata* Hufn. Three: 25.v.1954; 7 and 18.vi.1955.  
*Mysticoptera sexalata* Retz. Common at m.v.  
*Calocalpe undulata* L. 21.vii.1954 (two); 3.viii.1954; 11.viii.1955.  
*Lygris testata* L. One: 4.viii.1951, at lamp on heath.  
*L. mellinata* Fab. "Two escaped from currant cage during the afternoon. One came to lamp at dusk", 20.vi.1952. "Disturbed two in the currant cage", 1.vii.1953". Five larvae found in currant cage", 10.v.1953.  
*L. pyraliata* Schiff. One: 20.vii.1954.  
*Plemyria bicolorata* Hufn. One, taken in garden; 25.vi.1952.  
*Thera firmata* Hb. One: 31.viii.1954.  
*Xanthorhoe ferrugata* Cl. Common at m.v.  
*X. designata* Hufn. One: 30.vi.1955.  
*Epirrhoe alternata* Müll. One: 16.vi.1951, at dusk in garden.  
*Colostygia pectinataria* Knoch. Two: 10.vi.1954; 20.vi.1955.  
*Euphyia unangulata* Haw. Common at m.v.  
*Melanthia procellata* Schiff. One: 15.viii.1955.  
*Pelurga comitata* L. One: 7.viii.1954.  
*Perizoma alchemillata* L. Three: 31.vii and 2.viii.1954; 17.vii.1955.  
*Hydriomena furcata* Thunb. Eight in 1954, one in 1955.  
*H. impluviata* Schiff. Two: 17.vi and 18.vi.1955.  
*Asthena albulata* Hufn. 11.vi.1951 (three), 8.vi.1955.  
*Hydrelia flammeolaria* Hufn. Three: 23.vi.1954, 8.vi and 30.vi.1955.  
*Oporinia autumnata* Borkh. Common.  
*Eupithecia centaureata* Schiff. Two: 5.viii.1954; 4.viii.1955.

- E. pulchellata* Steph. 14.vii.1951; 20.vi.1953; four in 1954.  
*E. pusillata* Schiff. One: 4.v.1954, at Tilley lamp.  
*E. expallidata* Doubl. One: 11.viii.1955.  
*E. assimidata* Doubl. Larvae on hops and currant, ix.1953; 15.v, 19.v, 25.vii.1954.  
*E. absinthiata* Cl. Common at m.v.  
*E. vulgata* Haw. Common.  
*E. castigata* Hb. 7.vi and 18.vi.1954; five in 1955.  
*E. intricata* Zett. ssp. *arceuthata* Fr. Common.  
*E. succenturiata* L. One: 17.vii.1955.  
*E. subfulvata* Haw. Common.  
*E. subumbrata* Schiff. One: 2.vi.1954.  
*E. tenuiata* Hb. One: 3.viii.1954.  
*E. exigua* Hb. One: 15.v.1954.  
*Chloroclystis coronata* Hb. Two: 9.v and 3.vii.1954.  
*C. rectangulata* L. Two in 1954, common in 1955.  
*Gymnoscelis pumilata* Hb. Common.  
*Horisme vitalbata* Schiff. One: 25.viii.1954.  
*Lomaspilis marginata* L. Common at m.v. 1954 and 1955.  
*Bapta bimaculata* Fab. One: 19.v.1954.  
*Cabera exanthemata* Scop. 23.vi.1951; five in 1954.  
*Ellopiia fasciaria* Schiff. (*prosapiaria* L.). Four in 1954.  
*Deuteronomos erosaria* Schiff. Common.  
*Apeira syringaria* L. Two: 6.vii.1954; 17.vii.1955.  
*Epione repandaria* Hufn. Two: 9.ix.1951; 28.ix.1953, at porch light.  
*Lithina chlorosata* Scop. Common.  
*Semiothisa liturata* Cl. Common at m.v., 1954 and 1955.  
*Erannis leucophaearia* Schiff. Once: four at m.v., 1.ii.1955.  
*Cleora cinctaria* Schiff. Two: 6.v.1951; 27.iv.1952, both on pine trunk on heath.  
*Ectropis bistortata* Goeze. Three: 18.iv.1952; 18.iv.1955; 23.iv.1955.  
*E. luridata* Borkh. Three: 23.vi.1951 on oak trunk; 23.vi.1955; 11.vii.1955 at m.v.  
*Alcis rhomboidaria* Schiff. Very common at m.v.  
*Gnophos obscurata* Schiff. Two: 28.vii.1951, in house; 25.vii.1955 at m.v.  
*Selidosema plumaria* Schiff. Once: 14.viii.1951, two on the heath.  
*Aspitates ochrearia* Rossi. Two: 24.viii.1954; 20.viii.1955.  
*Perconia strigillaria* Hb. Once: 26.vii.1953, two on the heath.

## Notes on Microlepidoptera

By H. C. HUGGINS, F.R.E.S.

*Migration.* In the past summer I have been still more greatly impressed by the movements of insects usually regarded as non-migratory, and I suggest that all microlepidopterists will find it interesting to record, at any rate in their own note-books, those insects which appear to have come from a distance.

The regular appearance of *Agdistis bennetii* Curt. in traps several miles from the nearest salting is particularly impressive. I have taken this moth every year for the past three, always when the wind is in

the south-west, and this year Mr. D. Down has been taking it in the heart of the town, always when the wind is in that direction.

I am now convinced that *Ecnaemidophorus rhodoductyla* Schiff. is an established immigrant, in nearly all localities one of recent origin. I have known it personally in six localities, and of these Chatteris is the only one more than six miles from the sea or river, although it has probably always been established in the Epping area. At Chattenden it shared its main locality with *Nola albula* Hübn., an admitted wanderer that has re-established itself after temporary extinction and in this district it did not appear until 1950. Whittle never found it here and I did not prior to the war, although we both knew it well.

I have recently taken *Crampus paludellus* Hübn. at light in the heart of a waterless wood, and *Schoenobius gigantellus* Schiff. and *S. mucronellus* Schiff. in my garden. It would be most interesting and informative if the maker of an artificial pond would keep accurate notes of when such micros first appeared and also of their nearest known locality (*mucronellus* is not known in Essex apart from my garden record).

**Melanism.** Whilst careful records are being made of many macros I have seen none in print of any possible cases of industrial melanism in micros. *Phycita spissicella* Fab. has long since become melanic in this area; nearly 50 per cent. are now leaden or nearly black, and the old rather brilliant variegated insect has gone altogether. *Euzophera pinguis* Haw. and *E. marmorea* Haw. have now followed its example; the form of *pinguis* that is just beginning to appear is particularly striking, the buff being suffused with smoky smears. I hope that the statistics of at any rate the first appearance of melanism in our unfashionable groups will go on record, if not the actual numbers seen in a season.

September to November is the right time to watch the lamp carefully for immigrant pyralids, *Euchromius ocellea* Haw. and *Diasemia litterata* Scop. being somewhat insignificant ones which should especially be sought. Incidentally, before we all became "parva-conscious" I wonder how many of that insect were tipped out as Tortrices?

## Notes on the Tineina

S. WAKELY

September—The second brood of *Blastobasis decolorella* Wo. is on the wing now, and this species comes freely to light. It is well established at Herne Hill and Dulwich in London and the moth can be taken at rest on fences during the day.

Autumn larvae of many species often abound, and are usually easy to rear. Two common ones in the London area are *Aristotelia hermanella* F. and *A. stipella* Hb., both on *Artemisia vulgaris*. The former has a greenish mine, but the white mines of the latter are easier to see. *Telphusa notatella* Hb. larvae can be found between two spun leaves of Sallow, while *T. proximella* Hb. feeds in a similar manner on birch.

*T. scriptella* Hb. larvae fold the leaves of maple neatly in half and are common locally. I have taken it at Stanford-le-Hope (Essex), Selsdon (Surrey) and elsewhere. *Phthorimaea acuminatella* Sirc. larvae feed in leaves of the Dwarf Thistle (*Cirsium acaulon*) on chalk downs, but it also occurs on other thistles. The chief feeding place is in the mid rib of the leaf, but this often extends out into the other parts of the leaf.

By collecting hawthorn berries larvae of *Chrysoclista hellerella* Dup. can be found. They pupate best in rotten wood. *Enicostoma lobella* Schiff. larvae like the new growths of black-thorn and live in slight web under the leaves which are turned downwards.

Where the Common Gromwell (*Lithospermum officinale*) occurs larvae of *Ethmia decemguttella* Hb. should be searched for on the undersides of the leaves. Druid's Grove, Mickleham, Surrey, is a good place for this local insect and it is also common at Hod Hill in Dorset.

Many of the Coleophoridae can be taken during the month. If the flower stems of Sea Lavender are examined a single flower will often be seen attached to the main stem. These stems can be taken and *Goniodoma limoniella* Stt. should emerge from them the following June. The larva lives in a portable case made of the flower and pupates in the stem. The case is attached at first, but after the larva has burrowed into the stem it usually falls off. Other species to be looked for are *Coleophora deauratella* Zell. on the old flower-heads of clover, the end of the case being visible sticking out of the round seed-head. Cases of *C. frishchella* Zell. can be found under plants of Melilot. The case is rather large, but not easy to discern on the ground among the many seeds of the plant. *C. potentillae* Stt. occurs in numbers at Riddlesdown and Chipstead in Surrey, feeding on the leaves of Salad Burnet. *C. fuscocuprella* H.-S. can be found on hazel leaves in Blean Woods, Kent, where it is often common. The leaf-feeding Coleophorids make white or brownish blotches on the leaves and the cases can be found on the undersides of these speckled leaves. The dark brown cases of *C. therinella* can be found on leaves of the Creeping Thistle (*Carduus arvensis*). Other species occur on the flowers and seedheads, namely, *C. nutantella* on *Silene vulgaris*; *C. lineolea* Haw. on *Stellaria graminea*; *C. asteris* Muhlig. (*tripoliella* Hodgkh.) on *Aster tripolium*; *C. erigerella* Ford on *Erigeron acre* (occurs at Mickleham by the main roadway); *C. artemisiella* Scott on *Artemisia maritima*; *C. artemisicolella* Bruand on *Artemisia vulgaris* (occurs at Darenth and Woolwich in Kent); and *C. obtusella* Stt. on *Juncus maritimus* (occurs at Benfleet, Essex).

Larvae of the very local *Lithocolletis comparella* Zell. can be found on leaves of White Poplar at Tooting Bec Common in London. This species suffers badly from the attacks of parasites, but the moths from healthy larvae all emerge in the autumn. *L. comparella* larvae have occasionally been found on aspen.

A bagful of seedheads of *Pimpinella saxifraga* gathered at Riddlesdown, Surrey, will contain numerous larvae of *Cataplectica profugella* Stt., and the small pupae will be found if the material is examined a few months later. Both larvae and pupae of *Bedellia somnulentella* Zell. can be found on leaves of the large and small Convolvulus. The larvae mine the leaves and pupation takes place in slight web on the undersurface. The moths emerge a few weeks after pupation. This species is widely distributed in the southern counties.



# Current Notes

By THE EDITOR

THE WORLD CONGRESS OF ZOOLOGICAL NOMENCLATURE, which has just ended, will of course be publishing its report in due time, but we understand that this may bring hope to those who may have felt constrained to take counsel's opinion on the interpretation of the existing code, for we are told that much of the business was concerned with devising means for simplifying this code, which may be said to have reached a state of intolerable complication. The preparation of this report will naturally take some little time, but it should be worth waiting for.

INSECT MIGRATION, *New Naturalist*, **36**, by C. B. Williams, F.R.S.; 235 pp., with coloured and half-tone plates and tables and diagrams in the text, serves as a summary and collation of this energetic entomologist's publications during the long period of his study of this question. The book is divided into four parts, Introduction, The Evidence, The Problems, and How the Work is done, the final part containing a list of publications from 1200 B.C. to 1957 with a bearing on the subject.

THE WORLD OF BUTTERFLIES AND MOTHS, by Alexander B. Klots, 207 pp. and 88 plates of which 24 are in colour; Harrap, 60/-. Last year (*Ent. Rec.*, **69**: 253) we reviewed the French edition of this work, so that it is unnecessary again to go into the contents of this beautiful and interesting book. It is sufficient to say that the English edition, foreseen in that review, has now been published, with the same beautiful plates from photographs by the author and noted entomological photographers in many parts of the world, and the very interesting text in concise English which brings forward many new aspects of insect behaviour and relationships with other forms of life. This is a book for all who can afford it.

## Notes and Observations

MACROGLOSSA STELLATARUM LINN. IN LEICESTERSHIRE.—A *Macroglossa stellatarum* Linn. was seen on 29th June 1958 at Out Woods, near Woodhouse, in the Charnwood Forest. The moth appeared from the N.E. flying rapidly a few feet above the dense bracken, completely circled the outcrop of rock on which my family were picnicking and continued S.E. I was able to check its mousy upperparts and chequered "tail" as it conveniently flew past me the second time.—D. C. HULME, 1 Melton Avenue, Littleover, Derby. 22.vii.58.

APHOMIA SOCIELLA LINN. IN DERBYSHIRE.—At 21.20 G.M.T. on 15th July 1958, during a thunderstorm, I switched on the kitchen light and proceeded to make a pot of tea. A large Pyralid alighted on the window. I grabbed a glass-topped box and made a dash through the heavy rain. On consulting Beirne's book, the first plate confirmed the prize as a ♀ *Aphomia sociella* Linn. Although both B. P. Beirne and E. Meyrick state that this is a common species, the only previous Derbyshire records are as follows: Repton, prior to 1863 (Edwin Brown);

prior to 1866 (F. M. Spilsbury) and Little Eaton, prior to 1905, rare (John Hill). When I returned to the kitchen, it was full of steam!—D. C. HULME, 1 Melton Avenue, Littleover, Derby. 22.vii.58.

**AEGERIA SPECIFORMIS SCHIFF. AT WITHERSLACK, WESTMORLAND.**—Few records of the existence of Clearwings in the southern part of the Lake District have been published. The dearth of records is probably to be attributed to neglect of the group rather than the absence of the insects themselves. It was with much pleasure, therefore, that I found a fine male *Aegeria speciformis* in my net after striking, unsuccessfully, at a Syrphid feeding at flowers of Common Buckthorn (*Rhamnus cathartica* L.) in Black Tom's Lane, Witherslack, on 10th July this year. To the best of my knowledge the only previous record of this species in this district concerns a series bred by the late A. Miles Moss from pupae obtained near Windermere station in 1895 (vide *Entom.*, XXVIII, 336). This record is quoted in all the published lists relevant to the Lake District. The larva of *speciformis* feeds on Alder, which is an abundant and widespread plant in this district, so it would seem probable that the moth may well be found to be frequent and widespread in this area. It is possible that visiting collectors may have taken the species and not put their captures on record. It is hoped that if this is the case they may now be persuaded to record their captures.—Dr. NEVILLE L. BIRKETT, 3 Thorny Hills, Kendal. 15.vii.58.

**HELIOTHIS PELTIGERA AT BRADFORD, YORKS.**—On the morning of 6th May 1958 I found a male *Heliothis peltigera* in perfect condition in a m.v. light trap situated in my back garden in a built-up area. This is the second time I have taken this species, here in my trap, the last occasion being 26th August 1955. Only two other reports are to be found in the Yorkshire Naturalists' Union's records, one on 6th September 1885 at Kilnsea Beacon, and three larvae on Marigolds at Hull in 1947.—J. BRIGGS, 15 Frimley Drive, Little Horton, Bradford. 21.vi.58.

## Current Literature

Along the seashore there is a well-marked zonation in the vegetation when sand dunes dominated by grasses cut off a heath like zone inland and where, between the dunes and the shore, grow some of the localised fore-dune plants such as *Arenaria* and *Cakile*. Recently in *Opuscula Entomologica*, 1957, Supplement 14, P. Ardö has attempted to show a similar zonation in the Diptera inhabiting the dunes and their surroundings, in a paper [in English] titled "Studies in the marine shore dune ecosystem with special reference to the Dipterous fauna". Much of this paper is a description of the dunes as an environment, and there is also a long list, covering 68 pages, of species recorded from the dunes in Scandinavia. Most of these flies are not restricted or peculiar to the dunes and may be casual visitors only. Some of the true inhabitants of the seashore are, however, studied in greater detail. Characteristic of the shore are species such as *Helcomyza ustulata* Curtis, *Coelopa frigida* F., *Limosina zosterae* Hal., *Fucellia fucorum* Fall., and *Scatophaga litorea* Fall. H. O. Backlund, in a similar supplement (1945,

The Wrack Fauna of Sweden and Finland, *Opusc. Ent. Suppl.*, 5) has already described the seaweed belt fringing the sea as an environment for these flies and other animals. Some of the flies found along the shore, such as *Tethina illota* Hal., *T. grisea* Fall. and *Hecamede albicans*, are also found in the fore dune zone, *Tethina* visiting *Arenaria* and *Cakile* when these plants are flowering. In this zone the Scatopsid *Aspistes berolinensis* Mg. is particularly frequent, both adults and pupae being able to dig into the sand, and *Tetanops myopina* Fall., *Trixoscelis obscurella* Fall. (pupae found in the sand beneath *Arenaria*), *Scatella subguttata* Mg., *Aphanotriconum meijerei* Duda (bred from *Arenaria*), *Chlorops fulvifrons* Hall. (pupae found in the sand beneath *Cakile*), *Dexiopsis minutalis* Zett. (pupa in the sand under *Arenaria*), and four species of *Delia* are also recorded. It is interesting that the *Delia* species all differ in the time of year at which they are most abundant.

On the dune ridge itself are found *Philonicus albiceps* Mg., *Phthiria pulicaria* Mikan, *Thereva annulata* F., *Stiphrosoma sabulosum* Hal., *Chamaemyia flavipalpis* Hal., *Asteia concinna* Mg., *Helina protuberans* Zett., and two other *Delia* species, as well as *Conioscinella brachyptera* Zett. This last fly was not caught at all by sweeping but by searching at the bases of the grasses *Psamma* and *Elymus*, where *Stiphrosoma* was also found. Some of these species were found in other vegetational areas and two flies, *Minettia plumicornis* Fall. and *Chamaemyia juncorum* Fall., which were common on the dune heath also were found nearer the sea on the dunes themselves. Despite this overlap of the ranges of some of the flies, others were found only in one particular vegetational area. The author suggests that the zonation of the flies may be partly explained by some species, notably the seashore group, preferring lower temperatures, whereas higher temperatures are preferred by species such as *Philonicus albiceps* and *Thereva annulata*. In his studies the author has recorded each specimen of each species found in the field and as a consequence is able to give both the zonal and the seasonal distribution. With reference to the life history of *Phthiria pulicaria* he says that no investigations have been done and "the field is open for a quiet study". This remark is applicable to many species in England, including the ones found by the sea. The paper is illustrated by seventeen good photographs of some of the species studied.

B. R. L.

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The Annual Exhibition of the South London Entomological and Natural History Society will be held at the rooms of the Royal Society, Burlington House, Piccadilly, on Saturday, 25th October, from 11 a.m. to 6 p.m. Tea will be served on the premises between 3.30 and 5 p.m. at a charge of 2s 9d per person. Application for tea tickets, accompanied by remittance, must be sent to the Hon. Treasurer before 20th October. This year the groups for special attention will be Diptera and Hymenoptera. Space will be available for photographs, paintings, drawings and lantern slides. Visitors are welcome.

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ERRATA: *Antea*, p. 195, Notes and Observations first line read PELTIGERA and in line 10 read to be no less late.

# Obituary

CANON THOMAS G. EDWARDS

On 26th April of this year, we were advised of the death of our friend, Canon Thomas G. Edwards, and although we knew that his hold on life had been more or less precarious for the past five years, the expected event left us with a strong feeling of personal loss.

Our personal friendship with Canon Edwards dates back to 1941, when he joined the South London Entomological and Natural History Society, which had just removed from Hibernia Chambers, London Bridge to the Chapter House in St. Thomas's Street, Southwark. His kindly nature was coupled with that directness, devoid of arrogance or malice, which seems to be rarely found outside members of the clergy.

Canon Edwards was born in 1888 at Newcastle under Lyme, and distinguished himself at Cambridge, taking his B.A. in 1909, having gained a first class in the Natural Science Tripos, parts I and II, in 1908 and 1909 respectively, taking his M.A. in 1912. He informed us at the last Verrall Supper he attended, that he was offered the post of biologist to the ill-fated expedition to the Antarctic of Captain Scott in 1909. He entered the Church, and became curate at Christ Church, Gipsy Hill, in 1911 where he remained until 1919, serving 1917-19 as chaplain to the B.E.F. in Palestine.

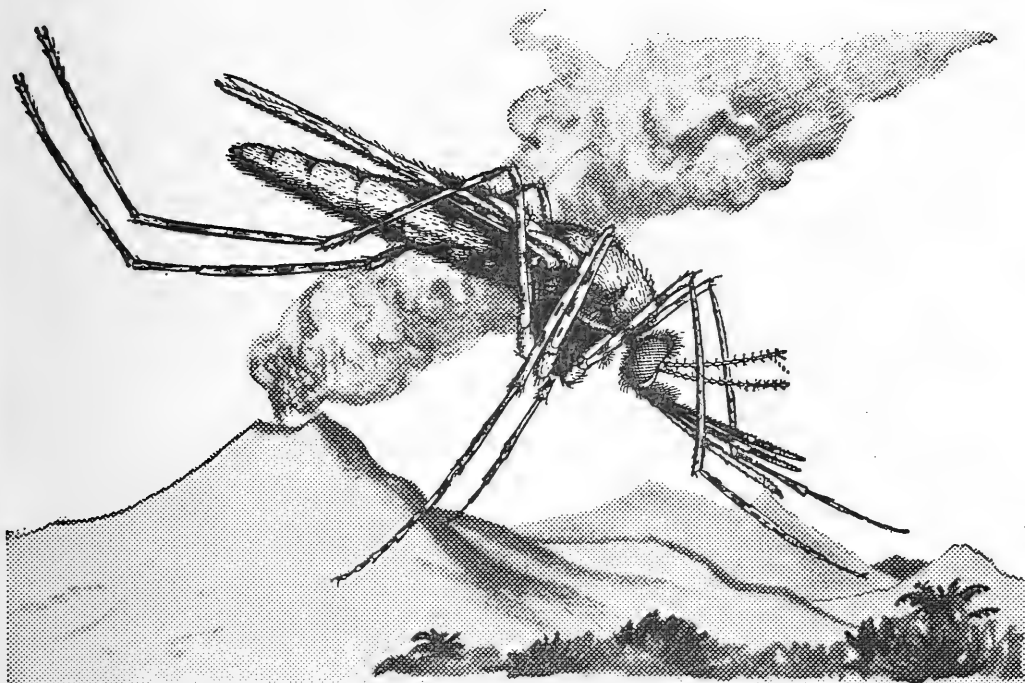
From 1919 until 1929 he was vicar of Emmanuel Church, West Dulwich, after which he served Christ Church, Stone, Staffordshire, until 1933, returning to South East London in that year to become vicar of Holy Trinity, Tulse Hill, where he stayed until 1953. He became rural dean of Brixton and Kennington in 1937 until 1946, and became Honorary Canon of Southwark Cathedral 1937 until 1945, in which year he became Resident Canon. He was also Chaplain to the Haberdashers' Company.

Our friend took a keen and true interest in the lepidoptera, being a keen field worker whenever the opportunity offered and his holidays were devoted to his study. I say a true interest because he only took material necessary to aid his studies and definitely viewed with disfavour the taking of long series, deriving more pleasure from the living insects. He developed a strong interest in the micro-lepidoptera and took several interesting species, adding *Laspeyresia lobarzewskii* Nowici to the British list, and was working with Mr. S. Wakely when the latter took the first British *Ancylolomia tentaculella* Hb.

After serious heart trouble in 1953, Canon Edwards was forced to take his field work in a very leisurely manner, which precluded him from joining the South London field meetings, but he was, to the last, regular in his attendance at the Verrall Suppers, the South London dinners, and the South London annual exhibitions, when he always produced something of interest, mostly taken at the sheet under a "blended" lamp: he never operated a trap, and latterly was not able to stay out really late with the sheet, but he derived great pleasure from seeing the insects at his sheet, and he had a very keen eye for anything unusual in his visitors.

With a keen sense of loss still strongly with us, we can offer very sincere sympathy to his widow, knowing her loss to be so very much greater.

S. N. A. J.



## The greater danger

Across Central America the volcanoes march in rugged array. Some dead, some dying, some fiercely active, with sulphurous breath staining the sky. Earth tremors rattle the shutters. Cracks widen. Plaster flakes. The ground heaves. *El temblor* has killed many in its time.

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## EXCHANGES AND WANTS

*Cambridgeshire Lepidoptera*.—Records wanted for new County list in preparation. Butterflies, Pyralids and all Chippenham fen records particularly wanted. Full acknowledgment will be given.—*Brian O. C. Gardiner, 43 Woodlark Road, Cambridge.*

*Wanted*.—An examination of the Coleoptera section of the General Science Museum at Merchant's Taylors School shows that there are a great many gaps in it. Can any Coleopterist readers of the *Record* assist by sending some of their duplicates?—*G. Lucas, 17 Munden Grove, North Watford, Hertfordshire.*

*For Sale*.—Aberrations of *A. caja*.—*R. G. Todd, West Runton, Cromer, Norfolk.*

*For Sale*.—Entomological Cabinets, all sizes, due to change over to unit system. Details on application. Easy payments if required. *R. W. Watson, "Porcorum", Sandy Down, Boldre, Near Lymington, Hants.*

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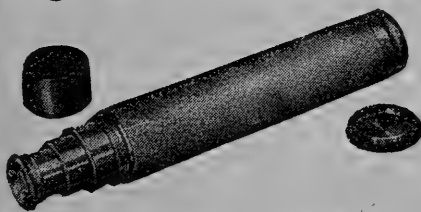
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a'ASSIS-FONSECA, F.R.E.S.

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# Biological Changes during the Twentieth Century

By S. N. A. JACOBS

Much anxiety has been expressed by entomologists about the obvious decline in insect numbers, more especially during the past ten years, and many reasons have been put forward, from weather and radiation to insecticide spraying and the increase in the bird population, but I would suggest that the drastic changes in biotopes since 1939 are among the most potent causes of this distressing state of affairs.

These changes have been brought about by many causes including the expansion of industry coupled with the new residential areas resulting from this expansion, the planting of vast areas with conifers to satisfy the demand for pit props, opencast mining, the mechanisation of agriculture and transport reducing the horse population and increasing the size of fields, to the elimination of hedges and small woods, myxomatosis, and the high cost of labour which has prevented efficient action in clearing smothering plants such as bracken, hawthorn and dogwood.

There has, of course, been a constant changing of biotopes since and before the advent of man on earth, but the tempo has increased since man's advent, and even more rapidly in recent years, probably as a direct result of the great leap forward in the population of the British Isles which has practically doubled since the beginning of the century, though the figure of about fifty millions would seem to be near the saturation level.

I have always regarded it as one of the laws of nature that high fecundity should be coupled with high mortality, but we would seem to have gained a temporary victory over this law in the great advances in medical knowledge. Let us not, however, let this decided advance for mankind divert our attention from the ugly threat of nuclear weapons which might at any moment supply that high mortality: one of my mother's favourite proverbs was: "Let him who thinketh he stand take heed lest he fall", and the fall does not apply to man alone, but to the animal and vegetable worlds in general.

Man has his allotted place in the scheme for preserving the balance of nature, but at times he exceeds his duty and exterminates that which he should control with the sequel of disrupted food chains drastically reducing species unable to change their way of life while the changing ways of those species capable of making the change will impinge heavily on some other food chain, and the results of the extermination of some creature previously regarded as insignificant, are as the ripples caused by a stone thrown into the proverbial still pond.

Our recollections of collecting in the London area would probably go back to 1905, when Catford in south east London was still almost "in the country", for there was much open space behind the ribbon development along the Hastings road and along the major east to west roads, and there were many gracious houses standing in grounds extending to several acres of parkland and garden, including "Mountsfield", the home of H. T. Stainton, which is preserved as a public park to-day. Here a big change had taken place late in the nineteenth century,

for Robert Adkin spoke of a productive oak wood which was one of Stainton's favourite haunts, which by my time had been cut down and replaced by the Hither Green fever hospital, which is now one of the L.C.C. general hospitals. Adkin told how as a boy he followed Stainton's field meetings at a respectful distance, and in turn, I was too shy to accept one of Mr Adkin's coveted invitations to his annual Eastbourne meetings, and as this was the last one of his active life, the chance did not recur. (Did I hear the O.M.H. repeat "*Carpe diem*"?) However, it was the kindly encouragement of Adkin and H. J. Turner which set my feet on the road of the microlepidoptera.

Building soon closed much of the "waste land" which was so productive for the young collector, but the fine recreation grounds remained, and do so to-day, having taken in some of the waste land, but the weeds of these spaces are now highly respectable and non-entomological grass! In my school days my brother and I used to get up at 6 a.m. on summer mornings to run the mile to the Ladywell swimming baths, have our swim, and run home again for breakfast, and in the season, one might see as many as twenty pairs of *Laothoe populi* on the trunks of the poplar trees along our path. Other local treasures were the occasional musk beetle (*Calichroma moschata*) and frequent puss-moth larvae on the willows along the banks of the Ravensbourne. Here the biotope has remained practically unchanged, although the insects are much less frequent.

The 1914 war saw some local alterations in the general country side, mostly in the nature of the erection of hutment camps on commons, downland, moorland and sometimes on farm land, and although aircraft were still at a stage where a fair sized grass field was good enough for landing and taking off, a few R.A.F. aerodromes began to appear. Some of the hutment land went back to agriculture, and some to the builder, and it was in the years following the end of hostilities that the large council estates began to appear.

About this time, the farm tractor started to replace the horse, and the reduction in the horse population, which declined fairly rapidly in the ensuing fifteen or twenty years, must have had its effect on the habits of the dung beetles associated with horse dung; some may have been satisfied to transfer their living to the dung of some other creature, but some, unable to make the change, must have adjusted their numbers to their food supply. It was also during this period that bracken was allowed to make its sinister inroads on our open spaces to the detriment of the finer herbage, but it was lauded by sentimental townsfolk who liked the autumn colours assumed by this plant, and to defend it, asserted that it was most valuable to farmers for litter, though any farmer will tell you that a cartload of bracken put in the yard in the autumn produces a barrow load of dung in the spring. This may be a little hyperbolic, but bracken certainly does have a high water content, and leaves very little when this has dried off, and there is also the danger of carting the spores out on to the land, thus assisting to spread the pest.

One locality of particular entomological virtue I can cite, Limpsfield Chart, on the Kent Surrey border, used to have a very fine bilberry undergrowth, and here one could always rely on finding *Bomolocha*

*fontis* Thbg. and *Cepphis advenaria* Hb., but now one would have to look carefully for the odd bilberry plant.

Much of the North Downs changed from open grassland with occasional woodland to a scrub of hawthorn, *Cornus* and *Viburnum*, probably due to a lack of sheep in the area, though the South Downs, where larger flocks are kept, have not suffered to the same extent, but the sad plague of myxomatosis, all but eliminating the rabbit from the countryside, has resulted in the rank grasses smothering the finer herbage, and the untidy dead growth making the winter scene most depressing. Farmers may rejoice for the present at the almost entire absence of the rabbit and press for its final extinction, but in time the land will suffer badly from the loss of these producers of humus and controllers of many noxious weeds such as dandelion, which, since the rabbit plague, carpets our roadsides with golden blooms in the spring, each producing its quota of flying seeds to infest the countryside to a still greater extent.

A certain amount of sewage sludge is salvaged for fertiliser, but chemical manures and this sludge cannot alone maintain the "nature" of the soil or support the essential nitrifying bacteria.

Another result of the rabbit plague has been the disruption of a very important food chain, and will be noticed by a section of entomologists by turning foxes more to the coleoptera, which always did have a place in their diet; this animal is being driven by hunger more and more into the inhabited areas; both my son and daughter have reported seeing a fox in the streets of Croydon when driving home late at night, and quite recently I found the unmistakable dung of a fox in my garden.

The results of the 1939 war emergency have had the greatest effect on the biotopical aspects of the country, for thousands and thousands of acres of common land and other open spaces hitherto uncultivated, were brought under the plough, whilst other tracts of land have been levelled for airfields. The New Forest in particular has been changed in this way, and the airfields remain, some of them entire with hangars and hutments, others merely represented by tarmac runways, with conifer stands rising on the open ground from seed blown from established stands, but in all cases the biotope has undergone some change. As regards the emergency ploughland, some of these plots are still rented to farmers by the councils concerned, while others have been allowed to "go back", but in this latter case, of course, the resultant herbage is not what was previously on the land, but now consists of coarse and sometimes exotic weeds, these latter having gained a footing in the land with seed imported with the grain seed.

The dumping of rubbish and soil as on the Thames marshes has produced several plants, and amongst them the "Russian thistle" which is such an unmitigated pest in the Canadian wheat lands. An interesting entomological result was the temporary establishment of a strong colony of *Heterographis oblitella* Z. in southern Essex.

Opencast mining is a changing factor of which I have had no experience, but it must have effected very considerable changes, for beside the change of vegetation which has been mentioned with regard to agricultural land which has been allowed to go back, there must be considerable changes in the levels of soil water after the coal has been removed and the "spoil" replaced. Perhaps one of our readers with

experience of such districts might fill the gap; it would make interesting reading.

Progress there must be, and it is only evidence of a lack of a sense of proportion to do more than regret the destruction of a favourite locality if the production of more food for human needs is the result, but there are cases where plan-drunk authorities delight in such destruction when alternatives are available, probably for the pleasure derived by setting by the ears people with more intelligence than they have. Pylons carrying electric power lines may not be romantically beautiful, but they are necessary and are not offensive even crossing mountain skylines, and where swathes of forest have been cut to allow the passage of such power lines, these clearings are kept open, and afford excellent haunts for many species of butterflies and other woodland insects. Towns and villages must grow, and so long as they do this gracefully, not allowing the new to oust the old, the result is pleasing; the only building abomination to my mind is the "planned town" constructed in one fell swoop at the cost of bulldozed wounds in the countryside; these I have heard very aptly described not as an architect's dream but a psychiatrist's nightmare. We know that these new towns are the result of an immediate urgency, but development in four or five distinct stages would have given a more pleasing result. Tastes differ, and it is a very short sighted policy for authorities to say to would-be inhabitants: "This is what you may have, and if you do not like it, there are others who do." In this way uniformity of minds is encouraged, and this is synonymous with the extinction of minds, and we have written at some length on the evils of extinction of anything.

As I have said, man is not included in the scheme of nature without duties to perform, and he is a very important agent in the control of many beasts, birds and fishes, and there is trouble both when he neglects and when he exceeds his duty. In the old days, huntin', shootin', and fishin' fulfilled these duties, but nowadays, there is added the intelligent local use of chemical substances where insect populations get out of hand.

Insects are our particular interest, and we may be pardoned our righteous wrath when a farmer, on seeing a caterpillar on an apple tree, forthwith orders the aerial spraying of the whole of his 1,000 acres with a general insecticide. Quite apart from our interest in insects, such action destroys his neighbour's bees on which, he remembers too late, he relied for the fertilisation of his fruit blossom in the spring. Private farmers are not the only sinners in this respect, and government bodies have been known to spread wanton destruction among insect populations because one of their treasured conifers has been nibbled to a minor degree, and there has been strong public outcry in parts of the United States to prevent the repetition of the disastrous spraying of a very large area with insecticide, which ruined the strawberry crop and caused much damage and inconvenience beside.

There are cases where drastic measures are necessary, and I understand that in spite of all that specialists can do, the area infested by the "Japanese beetle" increases every year, and of course the locust cannot be treated lightly; billions of these voracious pests are killed every year, but billions fly on, on their errand of destruction that their species may survive. Well timed and vigorous action on the part of the

Ministry of Agriculture prevented the spread of *Acrolepia assectella* Zell. when it invaded Hayling Island and destroyed onion and leek crops there, although Joseph Klimesch has noted that in its mountain haunts on the continent it confines itself to the wild species and leaves the crops of onion and leek alone.

This brings up the matter of changed habits accompanying a change of biotope, and another example coming to mind is *Blastobasis lignea* Walsm. a species first noted here about 1924 or 1925, and now reasonably common in many districts, and common in some, where yew grows; in Australia, whence it is said to have come, Meyrick notes that it was a pest of stored hides (he gave it the name *sarcophaga*), but here, so far as we know, it is a vegetarian, feeding on yew leaves.

I seem to have wandered somewhat from the realms of cause into the land of effect, but I think the lesson to be learned is that both progress and changes should be gradual, so that the changes wrought may pass without drastic effects, and although it is probably a vain hope, let us exert ourselves to ensure that never again will stringent necessity force us to destroy what remains of the beauty of our land.

## Notes on Lepidoptera from Cheshire and North Wales

By H. N. MICHAELIS.

On a warm cloudy evening in mid-July, a visit to a Wilmslow moss showed an abundance of *Crambus margaritellus* (Hübner), *C. pascuellus* (L.), *Scoparia ambigualis* (Treitschke), *S. pallida* (Stephens) and *Bryotropha similis* (Stainton). A walk over the rough ground of the moss disturbed so many of these species that it was rarely possible to strike at a selected specimen without netting others. I have heard others speak of "thousands", "countless thousands" and even of "millions" of Lepidoptera and at last, I have seen the first of the above listed superlatives. *C. margaritellus* was the most plentiful and the food of this species and of *C. pascuellus* is not known. Both probably feed on grasses of more than one species but, so far my few efforts to find the larvae have not been successful. Observation of the habitat and resting habits of these species suggest that *Molinia caerulea* (L.) may well be one of their foodplants. *C. pascuellus* and *S. ambigualis* were almost as plentiful and numbers were disturbed from the small birch bushes while *Crambus perlellus* (Scopoli) var. *warringtonellus* Stainton which is usually common, was scarce. Normally *S. pallida* flies at dusk and is difficult to disturb earlier in the evening and the early flight on this occasion (8 p.m.) was due to the dull cloudy conditions. The moth was not as active as the three species mentioned above and rested on the blades and stems of grasses from which it dropped to the ground if disturbed. Many of the specimens were streaked with dark scales on the forewings. As usual *B. similis* was rarely found on the more open parts of the moss and was plentiful among grass at the foot of birch bushes. It was pleasing to see that *Carsia imbutata* (Hübner) still maintains a hold, if somewhat precarious, for three specimens were seen.

On one of the few fine Saturday evenings of the summer two days after the visit to Wilmslow, I went to Flaxmere near Delamere. This

is a dried up or drained mere which is now in the condition of wet mossland. Here I hoped again to find *S. pallida*, although the ground appeared suitable and I searched until after dusk, none was seen; this must be a local moth for the only other localities where I have found it are at Spurn on the Yorkshire coast and on wet ground near Malham in north-west Yorkshire. The two Crambids were again plentiful at Flaxmere though *C. pascuellus* was in the greater number. *Crambus uliginosellus* Zeller was also present but is difficult to distinguish in the field among the swarms of *pascuellus*. At sunset a few late and worn *Aristotelia suffusella* (Douglas) were flying over the small pools and settling on grass and *Eriophorum*. The larva and food is unknown and a search in early June produced a few empty mines in the lower thicker parts of the leaves of *Eriophorum* which might possibly be the food and habitat. The mines of *Elachista rhynchosporaella* Stainton, which was also common, are found more towards the tip of the leaf. About 9 p.m. *Thomiges turfosalis* (Wocke) was resting on leaves of coarse tuft grasses which grow on the drier parts of the moss and was in greater numbers than I have previously seen at Delamere. It seems that this moth is frequently overlooked in Lancashire and Cheshire for records are few, possibly because it resembles a Tortricid when at rest. It occurs on most mosses and is found in suitable localities up to 1,200 feet. In 1958, it is hardly necessary to state that *Plutella maculipennis* (Curtis) was abundant as has been the case this summer in localities varying from suburban gardens to the high moorlands.

An afternoon in mid-August was spent at Deganwy, Caernarvonshire mainly in visiting the haunts of thirty years ago. While looking for a former locality for the Vipers Bugloss, I found a coarse white plant which was vaguely familiar, on the plant I noticed a Plume moth *Alucita spilodactyle* (Curtis), which identified the plant as *Marrubium vulgare*. Further search showed the moth to be plentiful in a restricted area. Previous records were from the area of the Little Orme, Llandudno, which is a few miles from Deganwy. *Marrubium* also grows on the Great Orme and a number of other adjacent hills and it is likely that *A. spilodactyla* will be present in such places. Later I went to the sandhills, the "Warren" of Lewis Carroll, to look at the spot where I took a single *Luperina nickerlii* Freyer in 1926 on ragwort flowers, which in my ignorance and inexperience was placed in a series of *Agrotis ripae* where it remained for many years. Unfortunately the place is now an extension of the Promenade and is backed by dunes precariously held together by Marram Grass and apart from Sea Holly and a small amount of *Chenopodium*, all the old vegetation has been buried by sand.

## Notes on some of the Eupithecidae

### Extracts from the Diaries of the late Dr Harold King

Edited by H. SYMES

Dr. King devoted much time and energy to studying the Eupithecidae. Two species which attracted his attention were those that feed on valerian (*Valeriana officinalis* L.), *E. satyrata* Hb. and *E. valerianata* Hb. Visiting Cranborne Chase on 19th June 1951, he noticed



"masses of *V. officinalis* on slopes in a valley on the road side". On 13th July, in the Stour valley near Spettisbury, he "collected a large bunch of *V. officinalis* flowers (3 to 4 feet high). This seems to be quite a different plant from the Cranborne Chase plant". (Probably it was a different species, *V. sambucifolia*). On 15th July he "collected a large bunch of *V. officinalis* on the chalk downs and swept lots of heads into the net. Any number of pug larvae of various kinds". On 23rd July he collected a large bunch of *V. officinalis* on a roadside in Cranborne Chase. Twenty-six moths which emerged in May and June 1952 were later identified as the southern form of *E. satyrata*.

On 26th July 1953, at a locality in Cranborne Chase, Dr. King "collected 237 stems of *V. officinalis*. Larvae seen on spent tops. Put flowers in water in jars. Two kinds of pug larvae on valerian, one agreeing with *E. valerianata*, the other with *E. satyrata* as portrayed by Buckler in his first drawing", but on 29th July he wrote "So far about 13 pug larvae have been picked off Cranborne Chase valerian. All seem to be *satyrata*; no *valerianata*". On 2nd August he wrote "on Winfrith Newburgh heath" (a locality now well-known for a very different reason. "I collected a few heads of *V. officinalis*. These had deteriorated so I beat them out and got one larva, small, of purplish colour". He rather thought it was *E. satyrata*, but when the moth emerged on 18th June 1954 it proved to be *E. valerianata*. From the Cranborne Chase larvae an *E. satyrata* emerged on 12th May and another on 13th June 1954.

On 14th July he collected a bunch of *V. officinalis* in another locality in Cranborne Chase, and on 27th July he collected about 200 heads in the original locality and a further 60 or so heads in a third. On 31st July he beat out the bunch collected on the 14th and found nothing. The other heads were beaten out on 5th August and 4 pug larvae were found: "no *satyrata*, but probably *valerianata* and possibly *oblongata*". Two *E. valerianata* emerged on 2nd and 3rd June 1955.

Another pug for which Dr. King worked very hard, and after some initial disappointments, very successfully, was *E. inturbata* Hb. His first reference to this species was on 7th June 1951, when he went to Cranborne Chase with Mr. Symes and beat maple. He wrote "I got about 11 *E. inturbata* larvae, Mr. Symes got 4 *Ptilophora plumigera* Schiff." These larvae came from the same trees, old maples covered with flowers. South says "the larvae of *inturbata* have a decided preference for the flowers", and on this and subsequent occasions none was beaten from any tree not in flower. On 19th June Dr. King paid a second visit to the locality and beat maple without getting a single *inturbata* larva. He noted "no flowered maple seen". Dr. King did not have any luck with these larvae; they all died on him. So on 1st August he returned to the scene and beat the maples, but there was "no sign of *inturbata* even on trees from which I got the larvae". He added that it was probably too late in the season.

On 23rd May 1952 he revisited the locality with Mr. Symes and had a much more successful day. "Beat 24 *E. inturbata* larvae off old maples and 6 or 7 *plumigera* larvae". But there was more trouble to come and on 22nd June we read "2 more ichneumons emerged from *inturbata* pupae". There had clearly been some before this, but they are not mentioned in the diary. However, on 9th July we read "*intur-*

*bata* emerged" on on 17th July "*inturbata* emerged, making 2 ex 24 larvae". A third emerged on 21st July.

On 26th May 1953 Dr. King and Mr. Symes paid yet another visit to the old maples in Cranborne Chase and had a good day. "I beat 3 *plumigera* larvae and Mr. S. one. Between us we got about 39 *inturbata* larvae". The first moth emerged on 9th July, 2 on 12th July, 2 on 13th, 3 on 15th, and one on 17th. Next year, on 31st May, Dr. King once more went to Cranborne Chase. "Beat old maples: got very small larvae of *plumigera* and about 30 maple pug larvae". One moth emerged on 18th July, 3 on 19th, 2 on 21st and 22nd, 5 on 23rd, 2 on 24th and 25th, and 1 on 26th.

On 5th June 1955 Dr. King again visited Cranborne Chase and "beat usual old maples. Flowers not so numerous and not so badly affected by green fly. Got about two dozen *inturbata* larvae and 3 *plumigera*, all small". These larvae must have done well, for on 1st July Dr. King was able to send 20 pupae to a friend.

Before he came to live at Parley Cross in 1951, Dr. King had not taken *E. dodoneata* Guen. His first specimen was bred on 18th April 1952 from a larva found at Tarrant Gunville. On 12th May 1952 he took one on a large tree in the Bournemouth Public Gardens. He had searched the trees there in the previous year without success. Then he struck a really good locality for the species at Mudeford. On 14th May he took one on a wall below a holm oak (*Quercus ilex*) in the morning. On the previous evening the Rev. F. M. B. Carr had taken three at light. On the evening of 15th May Dr. King beat 2 from holm oaks and on the 19th and 20th he took 11 and 15 respectively, flying at dusk around these trees. It is noteworthy that he never came across this species among the ordinary oaks in the New Forest.

In 1953 Dr. King began to work for *E. pimpinellata* Hb. On 1st September he found the foodplant, burnet saxifrage (*Pimpinella saxifraga*) near Durlstone Head, but did not see any larvae. Three days later he swept *P. saxifraga* on Bottlebush Down in North Dorset, also without success. But on 9th September at Badbury Rings, where the foodplant grows abundantly, he "started sweeping the seedheads with a net and got 1 larva straightaway. While putting it in a tin I noticed another larva on adjacent plant seeds. Easily seen. In all, picked up about 20 *pimpinellata*". Next day he visited Maiden Castle, where he found plenty of burnet saxifrage, but no larvae on it. On 13th September he wrote "on roadside beyond Badbury Rings I picked up a few *pimpinellata* larvae and later got more by the roadside between Tarrant Rawston and T. Monkton. Later at Badbury, picked up more, making 19 in all". On 18th September he found *P. saxifraga* growing near chalk pits not far from Badbury, but no larvae were seen. A second visit to Bottlebush Down was as unproductive as the first. But from all these larvae only three moths were bred and they emerged on 19th and 27th July and 7th August 1954. On 16th September 1954 Dr. King went to Badbury, searched *P. saxifraga*, and found 13 larvae, mostly small ones. On 20th September he found 7 larvae and on 22nd September about 16 in the same locality. He counted his larvae on 28th September and found the total was 44. But on 7th October he wrote "several *pimpinellata* larvae were stung and the parasite larva formed a white woolly cocoon by the side". On 15th October Dr. King col-

lected seedheads of *P. saxifraga* near Tarrant Rushton, "two larvae were still on them, one nearly full-fed, the other smaller and probably stung, as it had a peculiar shape". The first moth emerged on 10th July 1955, and nine more emerged between that date and 3rd August. Thus in two seasons only 13 moths were bred from over 80 larvae.

## A Moth to Look For

By AN OLD MOTH-HUNTER

In the January number of *Entomologische Berichten* of Amsterdam there was a paper of unusual interest for us British collectors. It is an account of the Lepidoptera which have recently been found to occur in a wood of some 220 acres near the Hook of Holland—which, according to my atlas, is 106 miles from Harwich as the steamer goes. For a wood of this size the list is a truly remarkable one: the butterflies number 38, including *P. machaon*, *P. daplidice*, *I. lathonia*, *F. niobe*, *M. charlotta*, *A. levana*, *N. polychloros* and *H. semele*, which last-mentioned insect one does not usually associate with woods in England. The hawkmoths are 9, Notodonts 11, Lymantriids 7, Lasio-campids 9, including *M. rubi* which I have never yet seen in a wood—though I can well believe it as the male is a most persistent gadabout—and that interesting fat-bodied moth *Odonestis pruni* L., which is a fine insect, very like a male *G. quercifolia* in size and shape, but of a reddish-orange tint, with a whitish spot in the middle of each forewing, of which the tip of the costa is somewhat recurved in the manner of a hook-tip. The rare (so far as I am concerned) *S. tabaniformis* is there and so are *Spilosoma urticae*, *Apatele auricoma*, *Moma alpium* and *Calamia virens*. Of the desirable Geometers there is no end.

Amongst all these hoped-for insects there is one which caught my eye, *Drepana curvatula* Bork. by name, which has not yet been recorded—at least so far as I remember—in England, though I suspect that it was an inhabitant of our island before our island became an island so to speak. For it is within the bounds of possibility—I put it no more strongly than that, though it seems to me a very strong possibility indeed—that in those far-off days, not long after the melting of the ice of this our present Ice Age began, when alder was a dominant plant throughout England, *D. curvatula* flew about our valleys and hillsides unhindered by entomologists, happy in that Golden Age, for moths, when the mercury vapour lamp-trap was as yet undreamt of. Its larval foodplant, wherever it occurs, seems to be alder, that rather dull-looking tree or shrub whereon, sometimes, though not nearly often enough, we find the larva of *bicuspis*.

This hook-tip is, today, common all over France (except in the south-east says Monsieur Lhomme)—including the Pas de Calais, Normandy and Brittany—and Belgium, is not rare in Denmark, and is found in both Norway and Sweden as well as throughout north central Europe. In appearance it resembles, both in size and colouring, a darkish male *D. falcataria* Linn. The larva is virtually indistinguishable from that of our Pebble Hook-tip and although, as I have just said, its usual foodplant is undoubtedly alder it has been found, occasionally, on birch. There are two broods in the year, moths and larvae being synchronous with our own species.

So far as habitats in the north of Europe are concerned *D. curvatula* is said to have a preference for alder carrs, and as alder carrs favour moist situations it certainly could not find a more suitable place of residence than our island. Therefore, since there are so many alder carrs—and in fact so many hundreds of square miles of terrain containing alder carrs—in Wales and Scotland as yet unexplored by entomologists, it is possible that *D. curvatula* still awaits discovery in this our island. I bear in mind, and recommend you to do so too, that it is not so many years since the Chequered Skipper, hitherto known only in our Midland counties, was found to exist in Inverness-shire of all places—aye, and not only exist but to go about its lawful occasions in a habitat which the pundits could have told it was quite unsuited to it. Indeed had you been so temerarious as to tell an English lepidopterist, fifty years ago, that *C. palaemon* Pallas might perhaps occur in the north of Scotland he would, had he been a charitable man, have asked you if you had ever thought of taking up the study of some other branch of Zoology.

Bearing these things in mind, then, I will tell you something that happened in my own experience not so many years ago. During the last European war I went to live in Montgomeryshire and there I found that *D. falcataria*, the Pebble Hook-tip, was a fairly common insect in the birchwoods which clothe so many hillsides and hilltops in the Severn district of that county. I saw it every year, mostly during the first week of June, often jinking about the bushes in the daytime—for although it sleeps by day it never seems to sleep very soundly and is easily aroused by bird or marauding lepidopterist—and I netted several, one of which supplied me with eggs. But on the frequent occasions when I visited the lower ground, notably a woodland in the Severn valley where birch also was plentiful, my diaries make no mention at all of *falcataria* nor do I remember ever seeing one on this lower ground. It occurred only on the higher ground, 400 feet and upwards above the Severn.

A mile or two away from my temporary home a pleasant stream, the Dulas, came down from the hills to join the river, and about a mile from its junction with the Severn it passed through an unusually beautiful little valley, the rather steep sides of which were clad with oakwood. In this valley was a glade, oval in shape and quite closed at either end by oaks. It was an unexpected and very lovely spot. The stream flowed at one side of the glade, right under the steep oak-clad hill, and on its left bank was a meadow perhaps fifty yards wide at its broadest, ablaze in summer with flowers about which flew in profusion three of the small fritillaries, *P. icarus* Rott., an occasional *P. c-album*, *A. paphia* (in profusion some years), *A. aglaia*, small tortoiseshells and peacocks and burnets according to their seasons.

On the banks of the stream as it flowed through the glade were alders, and on these alders I found the bedizened larva of *Orgyia recens* Hüb. And one summer's day as a companion and I were sitting by the meadow watching the butterflies we saw two or three hook-tips, with their unmistakable flight, jinking about the alders. Beyond calling my companion's attention to them I paid no further heed; hook-tips are not very easy targets for an elderly man and it was a very hot day. At that time I was unaware that such an insect as *D. cur-*

*vatula* existed and it was not until Dr. Hoffmeyer sent me a copy of his delightful book, with its admirable illustrations, that I remembered this incident.

No, I am not going to suggest that the hook-tips which my companion and I saw that day were *D. curvatula*; but it is a little odd that that was the only occasion when I saw hook-tips, during five years' residence in Montgomeryshire, and many previous visits, flying about alders in a river valley on the low ground. Of course *D. falcataria* is known to feed on alder as well as on birch, though I personally have never found the larva on any but the latter plant, and of course lepidopterists are just as prone to wishful thinking as anybody else. But, looking back, I wish I had known of the existence of *D. curvatula* in those days. For I still think it is possible that this hook-tip may, some day, turn up in some at present unexplored part of the west of this island. Meanwhile, have a look at that series of *falcataria* in your cabinet, and if you should find that you possess a specimen in which the diagonal outer line running across the forewings from the tip of the costa *is continued across the hind wings* you may lawfully proceed to make further enquiries into the *bona fides* of this particular specimen, especially if you bred the insect from a larva found on alder.

## An Entomologist in Jugoslavia

By RALPH L. COE

(Continued from page 191)

After a week's stay at Otesevo an urgent matter cropped up to take my attention from collecting, for my visa had to be renewed within twenty-four hours. Owing to strict regulations, the official at the Jugoslav Consulate in London could not grant me a visa to cover my full two months' stay. Now at the end of a month I had to get it renewed or leave the country.

The English-speaking cook at my hotel told me that I could obtain the necessary extension at Resen, so I went there by the early morning bus. Sitting next to me was a young soldier. In a mixture of broken English and French he told me that in civilian life he was a medical student in Belgrade. For the past two years he had been doing his compulsory spell of military service. Now it was nearly completed he could hardly wait to get back to his studies. When he reached Resen he kindly came with me to the police-station to help as interpreter if needed. At the entrance he explained my business to a grey-uniformed official, who said that I must go on to Bitola to obtain the extension. As that meant a further hour and a half's bus journey each way, my cherished hopes of doing some collecting later in the day vanished.

My helpful friend insisted on accompanying me to Bitola. After a long wait we boarded a bus and in due course reached our destination. This time we were shown into a small office where a rather pompous young man sat at a large desk. On the wall behind him hung the usual outsize portrait of Marshal Tito. After hearing the object of my visit, the official demanded to see my passport. He examined it carefully, then passed it back and spoke at some length to my companion. With a glum expression, the soldier told me

that an extension of visa could not be granted at Bitola, and I must go at once to Belgrade to renew it. This came as a bombshell, for Belgrade was over three hundred miles away to the north. I asked the soldier to explain to the official that I was not on holiday, but must complete a job of work in Macedonia before leaving the republic. He was stubborn in his decision, however, and it seemed as though an impasse had been reached. We all looked at one another in silence for a moment, then the man behind the desk shifted his attention to some papers that he had been examining when we walked in, as though to indicate that the interview was ended.

With so much at stake, I got my friend to plead further for me, and seeing that I was obstinate, the official angrily pressed a bell. A uniformed man answered the summons, received some instructions, and went out. The official bent to his papers, while the soldier and I waited quietly for developments. After five minutes or so a stout cheerful looking middle-aged man arrived. He spoke with the official in Yugoslav, then turned to me and said in a very American accent, "Say, you're in a tight spot here. Maybe I can help you". Again a one-time emigrant to the States had turned up! I explained my position to him and asked him to tell the official that if my visa were not renewed at once I would phone the British Consul at Skoplje and inform him of the matter. This produced an instant effect, and a few minutes later I walked out with my two helpers, the precious visa for a further month's stay neatly imprinted on my passport.

It turned out that the one-time American was a waiter at a local hotel. He told me that the night before an Englishman named Sladen had stayed there, and had asked him whether a Mr. Coe had visited the town recently. Dr. Sladen and his wife, who was with him, had left early that morning for Ochrid, so I had missed them by a few hours. This was a disappointment to me, for I had met Sladen at the Natural History Museum in London some months earlier, and we had hoped that our paths might cross at Bitola. He was in Yugoslavia studying bird-life, while his wife was collecting botanical specimens.

The waiter went back to his duties, and the soldier and I had lunch in a café. After our meal he bid me good-bye, and I set off to find what time the next bus left for Otesevo. It turned out that I had an hour to wait, so as my hair had not been cut since leaving home, I went to look for a barber's shop. Having found one, I went in and sat down in the single chair. A mirror was not produced until the barber had finished his job, which he carried out by means of an open razor, assiduously plied all round the back and sides of my head. When I looked in the mirror, I found that my hair-style was now in the local fashion, a mere circle of hair remaining on the crown. This drastic cut saw me through the rest of my stay in Yugoslavia, and only cost fifteen dinars (fourpence).

It was gloriously fine for the rest of my stay at Otesevo. Early one morning I swept for a few hours until the extreme heat had driven the small Diptera to ground. Then I concentrated on collecting individual flies from the blooms of Umbelliferae by the lake. Tachinidae, Syrphidae and Bombyliidae were in abundance. The most exciting capture was a wholly black-legged species of the Syrphid genus *Myolepta*. As the only two described European species of the genus

up to then were the partially yellow-legged *luteola* Gmelin and *potens* Collin, I was sure that this must be new. I managed to catch two males and a female of the species, which I have described as *nigritarsis* (1957, *Proc. R. Ent. Soc. Lond. (B)*, **26**, Pts. 3-4: 60-61).

Among other interesting Syrphidae taken on this occasion were *Myolepta luteola* Gmelin, *Xanthandrus comtus* Harris, *Didea fasciata* Macquart, *Chrysotoxum vernale* Loew, *Cheilosia soror* Zetterstedt, *Volucella zonaria* Poda, *Merodon longicornis* Sack, *M. spinipes* Fabricius, *M. aberrans* Egger, *Xylota lenta* Meigen, *Eumerus tricolor* Meigen and *E. amoenus* Loew. The Bombyliidae included *Bombylius fulvescens* Wiedemann, *B. pumilus* Meigen, *B. ater* Scopoli, *Dischistus imitator* Loew, *Cytherea pallasii* Loew, *Cyllenia maculata* Latreille, *Lomatia sabaea* Fabricius, *Hemipenthes morio* Linnaeus, and *H. velutinus* Meigen. This was collecting at its best, with a continual procession of flies visiting the flowers and the hot sun beating down. By late afternoon, alas, the heat had got the better of me, and I went back to my room to pin my captures. By the time I had completed this task it was time to go down for supper.

As I approached the restaurant I could see an unusual stir of activity. Outside stood a couple of buses, unloading a considerable number of passengers. It turned out to be the annual outing of a group of amateur actors from the town of Resen. They had come for supper and dancing, bringing their own three-man band. I sat down alone at a table, and watched the new arrivals with interest. A number of the small tables were placed together in a row and covered with white cloths. The visitors sat along opposite sides, laughing and chatting in lively fashion. They had brought their main item of food with them, a whole cooked lamb. I had just ordered my own fare, when I saw a waiter pointing me out to them. An extremely attractive girl left the group and came over to me. She said that she was learning English, and would like to join me at supper to improve her conversation. I agreed readily to this proposal, and called the waiter over to order food for her, but she would have none of this. Oh no! we would eat some of the lamb. Despite my protests, she went back to the long table and returned with two huge chunks of the carcass. She was amused when I suggested asking for knives and forks. We would eat with our fingers, she said. It was the custom. So we sat gnawing away while she asked me all kinds of questions about England.

When we had finished eating, I fetched paper and pencils from my obliging friend the cook and we had a useful lesson in our respective languages until the band struck up and we brought our class to a close. It was quite late when my vivacious companion left with the rest of the revellers. Bidding me good-bye, she said it had made her very happy to have the company of an Englishman. It was certainly a delightful episode so far as I was concerned.

I sat chatting with the cook for a while before going to bed, as had become our custom. As we looked across the tranquil waters of the great lake, shimmering in the light of the almost full moon, the silence was broken by the rat-tat-tat of machine-gun fire from across the Albanian frontier. At the same time a conflagration appeared on a mountain by the lake. The cook told me that although the Albanian frontier patrols were prone to start firing on a false alarm, the lighting



of the beacon indicated that there really was trouble this time. Political refugees would sometimes try to cross from Yugoslavia into Greece by working their way round the fringe of the wild Albanian mountains bordering the shores of the lake. He said that these attempts were usually frustrated by the vigilance of the frontier guards, who at the first alarm were warned at all points by the lighting of the beacon fire.

During my last day's collecting at Otesevo I came across a solitary willow tree by the lake, long grass reaching right up to the bole. It has been my experience in the remote parts of the Scottish highlands that solitary trees growing in open stretches of country near water usually have an abundant insect population, and this proved to be so in the present instance. Vigorous sweeping of the branches and long grass underneath resulted in nearly five hundred Diptera being netted. A large proportion belonged to the Acalypterate families *Scatomyzidae*, *Drosophilidae* and *Chloropidae*. They included many species new to my collection, and that I did not subsequently come across elsewhere in Yugoslavia.

Later that day I fulfilled a promise made to the hotel staff and photographed them in a happy group by the shore of the lake. At the end of the summer season this little community breaks up and the workers return to their homes in various parts of Macedonia for the winter, when they usually find employment in the tobacco factories that are scattered through the republic.

Another party of men and women turned up by bus in the evening to dance at the restaurant, bringing some small children with them. It was interesting to see how even the youngest child had the national love of music. During the dancing a line of chairs was placed by the band and youngsters of about three years and upwards eagerly sat down and listened with rapt attention to the music. I cannot imagine small English children sitting still for more than a few minutes to hear a band playing.

It was not easy to tear myself away from this fascinating corner of Macedonia, but I had many hundreds of miles to cover before completing my journey, and go I must. So next morning I caught the bus for Bitola, the first stage to Belgrade, the distant northern capital city of Yugoslavia. Shortly after midday I arrived at Bitola, and a ragged urchin took my cases to the hotel where I planned to spend the night before going on by train to Skoplje, the Macedonian capital. I was shown into a large, sparsely furnished bedroom. The only substantial piece of furniture was the Turkish style bed. It would have held comfortably five people, and had probably done so in past days, to judge from its antiquity. In width it exceeded six feet, and the bedding consisted of vividly patterned rugs, with a great red cushion doing duty as a pillow. The really appalling feature of this hotel was the toilet, which made everything I had come across so far seem quite civilised. In fact, a description of its peculiarities would be quite unprintable. Sufficient to say that the plumbing had obviously not functioned for a very long time.

After lunch at a near-by café, I spent the rest of the day in exploring this fascinating old town, in Turkish days the city of Monastir, and still strongly oriental in atmosphere with its many towering



mosques. There are thirty-five of these in all. In the streets may be seen an amazing mixture of nationalities—Macedonians, Bulgarians, Turks, Albanians and a sprinkling of Greeks. Some that I came across were pathetic in their poverty, wearing a ragged apparel of multi-coloured patches, the original cloth having completely vanished, and with feet bound up with strips of cloth as a substitute for shoes. I have seen similarly clad people among the poor in Egypt, with one important difference—the rags worn in Bitola looked clean. In contrast there were better-class peasants, the men wearing long white smocks reaching to below their thighs, with baggy trousers tucked into long black stockings and as headgear squat round fur caps. Their womenfolk favoured a light coloured sort of blouse with full dark skirt and a coloured neckerchief over the head, the ends flowing gracefully down over their shoulders. Other people were in Western-style attire.

Although the greater part of the town has wide, tree-lined streets, graceful mosques with pointed minarets, and modern style shops, there is a vastly different quarter to be explored. I reached it by crossing a bridge over the wide stream that runs through the town, and found myself in dusty cobbled lanes with rows of craftsmen's shops, their wares displayed on the pavements. At a blacksmith's forge a small boy worked a large hand bellows. Above him hanging from narrow wood cross-pieces were crudely fashioned metal hooks and odds and ends of agricultural implements, while heaped up outside on the pavement were ploughshares of primitive design.

A little antique shop with cracked and broken windows attracted my attention, and I went inside. A Falstaff of a man sat on a low bench, examining a watch. Seeing my interest in his wares, he brought me a stool and sent a small boy to fetch a jug of plum brandy, obviously hoping to do some business. With the boy and the brandy came two more men, one of whom spoke a little English. While the liquor was being enjoyed by all present, various articles were handed to me for inspection. Eventually I bought a few small knick-knacks and got up to go. But I was not finished yet. Falstaff wanted his photo taken. So to the vast entertainment of the onlookers the enormous man posed awkwardly on the raised stone slab at the entrance to his shop. Just as I was about to take the snap, someone rushed forward and put a lighted cigarette in my subject's hand. Evidently this was considered to add to his dignity, and the photo was then taken to everyone's satisfaction.

As I walked on, a heavily-laden cart drawn by a pair of long-horned oxen rumbled by over the cobbles. I stopped to look at a little stall where cheap trinkets, cigarettes, matches and other miscellaneous wares were displayed. The stall-keeper was a pathetic sight. He was totally blind, and had only one arm. In his lapel he wore the ex-partisan's badge. Before buying a filigree brooch I watched other customers picking up whatever they wished to purchase and handing over the money to the man.

On the way back to the hotel, I passed the remnants of a once famous covered market, which like other parts of Bitola suffered considerable damage in the 1914-18 war. In one corner were huge baskets crammed to overflowing with the small trout that swarm in the lakes of Prespa and Ochrid. An ancient peasant with fur cap and impos-

ing walrus moustache came towards me, leaning heavily on a stick. Seeing me level my camera at him, he scowled and tried to quicken his step, but too late; he is safely in my album.

Someone called out behind me, and I turned to see the English-speaking friend of the antique dealer running up. He begged me to come with him to visit a new hospital, and to meet the medical superintendent, whom he knew well. His pride in this addition to the town's amenities was so obvious that I could not well refuse him, so off we set together. It proved to be a fine modern building of white stone. We were shown up to the superintendent's room. He gave me a warm welcome, and after we had talked for some time about mosquitoes and other subjects of mutual interest, he took me on a tour of the wards. The modern equipment impressed me, and my guide said that the age-old scourges of malaria and typhoid were at last being overcome now that improved methods of treatment and control were available.

After leaving the hospital I told my companion that I must really get back to my hotel, but he said that on the way we should visit the local Museum of National Costumes. So we made a tour of the exhibits there. The costumes were well arranged in glass cases, and made a brilliant display of great historic interest. To my disappointment, I was not allowed to take any photographs. Bidding my friend good-bye, I soon reached my hotel, and in no time was asleep in state on the great Turkish bed.

(To be continued)

54 Crossways, Addington, Surrey.

## Notes on the Tineina

By S. WAKELY.

October—On sunny days the males of *Diurnea phryganella* Hb. are often seen flying in oak woodlands. The females have abbreviated wings and can be occasionally beaten from the branches of trees.

This is the best month of the year to collect many of the autumn larvae as they are more likely to be full-fed and thus easier to manage. The seedheads of marjoram can be examined for larvae of *Thiotricha subocellea* Steph. They live in a portable case made of portions of the flowers, and these cases usually project a little beyond the other part of the seedheads. Larvae of *Chrysoclista hellerella* Dup. can still be found in hawthorn berries. A great rarity nowadays is *Augasma aeratellum* Zell., the larvae of which inhabit galls made in the flower stems of knotgrass. The most recent records are from Dorset, but Kent, Sussex, Hants, etc., have old records of its occurrence.

It is not too late to find larvae of *Swammerdamia heroldella* Hb. feeding under a thin web on the top surface of birch leaves. I once found several larvae in Darenth Wood, Kent, feeding in their characteristic fashion on Sweet Chestnut.

Larvae of *Ethmia decemguttella* Hb. can be looked for on the undersides of the leaves of gromwell and the much more local *E. funerella* F. feeds in a similar manner on comfrey.

Many of the species of *Coleophora* mentioned last month can still be found. Others to look for are *Coleophora paripennella* Zell. on bramble,

*C. wockeella* Zell. on wood betony, *C. salicorniae* Wocke on glasswort, *C. argentula* Zell. on seedheads of yarrow, *C. virgaureae* Stt. on seedheads of golden rod, and *C. laripennella* Zett. on *Atriplex* and *Chenopodium*. The larvae of *C. salicornia* feed internally in the stems when young, and do not make a larval case until later. When full fed the case is left on the surface of the soil and the larva burrows into the ground for pupation.

Most of the *Lithocolletid* larvae can be found this month and several very different species can often be found on the same foodplant. For instance, there are four species on alder, several on oak, apple, etc. Other plants on which they occur are hornbeam, hazel, beach, blackthorn, cherry, whitebeam, mountain ash, hawthorn, wayfaring tree, willows, elm, honeysuckle, bush vetch, scabious, white poplar, maple, sycamore, etc. *Lithocolletis anderidae* Fletcher occurs on tiny birch seedlings a few inches high. *L. lautella* Zell. prefers young oaks about a foot or more high and feed several together in one leaf. Some of the species are very local, such as *L. distentella* Zell. on oak (Hereford); *L. insignitella* on *Trifolium* (Durham); and *L. scabiosella* Dougl. on *Scabiosa columbaria* (Surrey).

The larvae of the several species of *Ornix* feed in the folded edges of the leaves of their foodplants. *O. avellanella* Stt. is often very common on Hazel. Other species occur on apple, birch, beech, hawthorn, blackthorn and mountain ash.

*Cataplectica fulviguttella* Zell. larvae feed in the seeds of *Angelica*. I have bred it commonly from the Eppingham district in Surrey, but it is a local species.

All five of our species of *Tischeria* can be taken in the larval form this month. *T. complanella* Hb. is the commonest, and makes a conspicuous white blotch in leaves of oak and occasionally in sweet chestnut. *T. dadonea* Heyd. makes a brown blotch and is much more local. I have taken this in the New Forest, where it is sometimes common. The imagines of these two species are very similar. *T. marginata* Haw. makes irregular blotches in leaves of bramble and is common. The other two are rather rare—*T. gaunacella* Dup. in leaves of blackthorn and cherry and *T. angusticolella* Dup. in leaves of wild rose. The latter occurs at Benfleet, Essex, and can be found on the lower leaves which are often hidden among grasses and other low herbage.

Larvae of *Nemotois scabiosella* Scop. feed on the seeds of the field scabious. They can be taken in numbers by gathering the seedheads of *Knautia arvensis*, but are not easy to rear unless the plant is potted up, as the larvae feed on the leaves throughout the winter in a large portable case and do not pupate until the spring. It is quite a local insect. Addington, Surrey, is a good locality for it, also the downs round Eynsford and Shoreham, in Kent, as well as on the Chilterns.

## Current Notes

These 'Current Notes' are contributed as a rule by Mr. Allan, who is responsible for the opinions expressed in them. Any criticisms of them should be addressed to him. Those Notes contributed by the Editor or other correspondents have initials appended to them.

The papers read at the Tenth International Congress of Entomology held at Montreal in August 1956 are to be published and will be ready for delivery later in the year. The 700 papers will fill four volumes—in all 4,200 pages, the price of the set being \$75 post free, which is rather more than £27. Some of the papers of course may be epoch-making; others may even now have been superseded by more recent work; but doubtless the whole will form a useful corpus of reference, particularly for the writers of textbooks. But it seems a pity to bulk it out, and thereby of course increase the price, by printing lists of Congress officials, committees, members, addresses at the opening and closing sessions, speeches made at the banquet, and suchlike ephemeral social *additamenta*.

A new journal, *Entomologia Experimentalis et Applicata*, is announced from the Netherlands. It is to contain papers on experimental biology and ecology in English, French and German and in spite of its title it will not be confined to insects but will include "other land arthropods" such as millipedes and isopods but not "aquatic crustacea". The word "Entomologia" in the title seems therefore to be somewhat illogical and may deter zoologists interested in "other land arthropods" from searching its pages or indices for information. The journal will be issued quarterly at Three Guineas per annum, each quarterly part containing 80 pages. The Secretary to the six editors is Dr. P. A. van der Laan, Mauritskade 59a, Amsterdam, and the publishers the North-Holland Publishing Company, P.O. Box 103, Amsterdam. A prospectus is available. We wish it success, as we do every journal devoted to experimental biology and ecology of insects.

An interesting paper (in English) for British lepidopterists appears in the March issue of *Entomologische Berichten* at pp. 49-59, by J. H. Kuchlein, headed "Notes on Lepidoptera, mostly Microlepidoptera". The species discussed are *Tinea pallescentella* Stn., *Eidophasia messingiella* (F. von Röslerstamm), *Ancylis paludana* (Barrett), *Ancylis lundana* (Fabr.) f. *marginepunctana* nov., *Crambus pascuellus* (L.) f. *obscurellus* nov., and *Palpita unionalis* Hüb. The latter insect is discussed in some detail: (i) as a migrant, (ii) whence and how it reaches north-western Europe, (iii) biology, and (iv) nomenclature. Also discussed is *Odezia atrata* (L.) and its peculiar distribution, mention being made of its occasional appearance in large numbers close together "like sea-gull colonies", as recorded by Franzius in 1943 and Warnecke in 1942.

We should welcome offers of assistance from those of our subscribers who can read German, Dutch and the Scandinavian languages. A great deal of valuable entomological work is being done on the Continent and unfortunately the perennial language difficulty prevents the bulk of this work from being made available to our readers. Fifty years ago the boot was on the other foot: for every one worker on the insects on the Continent there were three in England. Now this position has been reversed, owing of course to the very much smaller proportion of entomologists to our very much larger population.

In an article in this journal in 1953 (*Ent. Rec.*, 65: 208) it was pointed out that during the decade 1890-1899 about 1,099 entomologists

were contributing, regularly or irregularly, to *Entomologist*, *Ent. mon. Mag.* and *Ent. Rec.* In 1950 the figure was 293. In the same decade the number of persons using the "Exchanges and Wants" pages were 346 for *Entomologist* and 348 for *Ent. Rec.* In 1950 the figures were 12 and 15 respectively. It is plain from these figures that during the last fifty years there has been a severe slump in the number of entomologists in England. No wonder our output of good scientific entomological literature is so small to-day compared with the work that is being done on the Continent.

It is easy of course to label the writer of these words *laudator temporis acti*; but if anybody should be tempted to do so let him spend a few hours (they will not be spent unprofitably) in looking through the volumes of the three above-mentioned magazines for the decade quoted. Then let him look at the volumes of these same magazines published in the decade 1946-1956. After this, let him read every entomological magazine published on the Continent during this last year 1957. His critical faculty will indeed be out of tune if he does not murmur "O Hamlet, what a falling-off was there!"

There are some who blame the m.v. lamp, and especially the m.v. lamp-trap, for the decline of Entomology and the rise of the "collector". We do not agree with them. To our mind it is the abuse of the m.v. lamp which has done harm—provided that you hold that harm *has* been done. The m.v. lamp has shown us what we did not know before—that most of the species which have always been accounted rare (e.g. *Apatele alni* L.) are in fact widely distributed and indeed actually common in places. The trouble is that these discoveries have not been followed up. We have read no carefully thought out, well reasoned account, in any entomological magazine published in this country, of the reasons *why*, for instance, *A. alni* has not, until the coming of the mercury vapour electric lamp, given any indication of its actual plentitude in large areas of this country where, previously, its very existence had not been recorded. How has it managed to keep its secret in spite of the most skilful field workers and all the usual paraphernalia for catching moths and discovering larvae and pupae? We cannot at the moment recall any record (though possibly such exist) of the finding of this insect's eggs.

## Collecting Notes

For years I have been waiting for some reader of this journal to send in an account of work with the m.v. lamp at the Elan Valley lakes in Co. Radnor. About forty years ago I went there to fish and regain health following a war which was really a very trying one and was so pleased with the district that further occasional visits were made until a few years ago. The fishing is not of the kind that appeals to anyone who has been brought up on a chalk stream, being of the 'chuck and chance it' variety; but it can be amusing and there are plenty of fish to be caught. The largest I ever saw—it was weighed on the household scales in my digs—was 5½ lbs., and I hope that I shall never look upon its like again, so hideous was it—a monstrous head with the body like

an eel. But there are plenty of two-pounders and these are shapely fish with bellies as golden as a guinea.

On each of my later visits I had to spend the mornings in a car drafting letters, to be posted to my London office on our way past the post office in Rhayader each evening; and so, as my son insisted upon me fishing all afternoon, I did little entomologising. But I found *Boarmia punctinalis* (*consortaria*) on a spruce and *Polia nebulosa* and the common Shark were noticed on fence posts. *Apamea rurea* (now called *crenata*) dashed wildly about tufts of *Festuca* in the sunshine, and many of the common Noctuids were seen or disturbed occasionally. The pretty little *Epirrhoe tristata*, another daytime flyer, was plentiful along the sides of the upper lakes. I should think that the lepidopterous fauna of the area is quite an interesting one.

The lake called Dol y Mynach (which the Welsh call 'Dolly Munnock') has reedbeds along one side, and there is mixed oakwood on the hillsides, with much heather and abundant bilberry. I have always thought it possible that the Small Lappet might linger on those hills above the lakes. There is a good deal of alder and *Salix* and *Myrica*, but very little aspen. In fact the only aspen I remember seeing in the district was a bush about three feet high which proved to contain five or six larvae of *Cerura vinula*. In June beehawks once patronised a huge rhododendron bush above the bridge just below Pen y Gareg dam. And one day, walking along the streamside to the south of the great new reservoir, I heard an unmistakable sound of 'singing' and found that the tall marsh thistles were tenanted by that fine dipteran *Sericomyia borealis*. High up this same valley a male *Procus statices* crossed my path, and was boxed.

Take a fishing rod with you if you go; the fee is only half-a-crown a day and if you have no luck in the daytime you should have no difficulty in landing a brace or two at late dusk. A bottle of dimethyl phthalate is *absolutely essential*: I have been literally driven away from the waterside at nightfall by Chironomid flies which filled one's eyes and ears and nostrils. A few spots of this stuff on hat and nose ensures complete freedom from the attention of midges. You can buy it at the chemist's in Rhayader.

A difficulty is to know where to stay. I don't think one is allowed to camp anywhere on the watershed; for these lakes supply Birmingham with its water—though, surprisingly enough, there is now a boat on the lowest lake (Caban Goch) which can be hired for about a pound a day; and what would happen if somebody fell overboard and were drowned, and his body sank, I know not. The lowest lake is about a hundred feet deep. Presumably the water drinkers of Birmingham would be quite upset. However, last time I was in Birmingham I saw no sign of any water-drinkers.

There is an hotel about a mile from the lakes and I hear that it is now a comfortable place and the food good. When I was in Rhayader last the only hotel was not too good and my son and I preferred to rough it somewhat in digs. But things may be different there nowadays. The river Wye above Rhayader is quite delightful and I have been told that the alders hereabouts are patronized by *H. bicuspis*. And there is of course always a chance that *Coscinia striata* (*grammica*), so long

accounted extinct, may turn up in some sheltered woodland spot on those hills.

Just below the Dol y Mynach dam there is a sawmill, and deep under the water here lie the remains of the house where Shelley once lived, Nantgwilt. It is a seemly place for trout of an evening, and once, in the gloaming, casting a fly delicately over the roof of Nantgwilt, a monstrous trout rose to my bait, a most colossal fish, as long as that—perhaps even longer, if trout grow as long as that. Unfortunately the instant he felt the hook the fish dived headlong down the dining-room chimney, and that, as they say, was that. For I can assure you that when once a trout dives down the dining-room chimney you can say goodbye to your hopes of landing him.

—By the way, I hope you will keep this matter to yourself; for should you ever chance to say “that Old Moth-Hunter says he once hooked a trout that swam down the dining-room chimney” my veracity as a fisherman, if not my ability as a teller of fisherman’s tales, might be seriously impugned. Somebody would be sure to say, “My dear, if you believe what the Old Moth-Hunter says you’ll believe anything, simply anything. And how did he know it was the dining-room chimney? I should think it was just as likely to have been the kitchen one”. Be that as it may, if you have a portable m.v. outfit please do think seriously about a week or two in this area, and then report the results of your field work to our Editor.

O. M. H.

## Practical Hints

Those who want to take specimens of the many forms of *A. oxyacanthæ* should lose no time in sugaring the outskirts of woodlands or indeed any sheltered spot where hawthorn and blackthorn abound. There are many intermediate forms between the type and form *capucina*, also a small grey form which, though usually on the wing in August, I have taken in mid-October. *A. lychnidis*, which varies even more than *A. oxyacanthæ*, is still about, and so is *G. aprilina*. Of this last-mentioned species it has been my experience that variation is more frequent in the ♀♀ than in the ♂♂.—But perhaps this is merely fortuitous. Both, of course, come to sugar.

The very fresh *P. meticulosa* which sometimes occur at one’s sugar in October are perhaps newly arrived immigrants, since quite a number will appear one night and thereafter only an occasional one. *C. vaccinii* and *C. ligula* vary a good deal in tone if not in markings, and the grey form of *E. transversa* is, I think, rather more common nowadays than it used to be. *A. circellaris* is still about and the very pale forms do not necessarily indicate that they have been a long time on the wing.

*A. lota* is another October visitor to sugar and in some districts it is a desirable moth. In Barrett’s day it seems to have been abundant everywhere, but this is certainly not the case to-day, at least so far as East Anglia is concerned, its distribution being distinctly patchy. Moreover there are some years when not a single one appears at my sugar. The Sallow moths, including *C. ocellaris*, are all fond of sugar and one

of them, the lime-feeding *T. citrigo*, seems to prefer to suck the drops of sugar which have run down to the base of the tree or paling. This pretty species used to be accounted local; but I have found it, from Essex to Wales, wherever there is a fair sprinkling of lime trees. *A. flavicincta* and *C. gilvago* also come to sugar at this season. I have never found the latter very far from elm trees; fence posts under a row of old elms is often a profitable place to spread sugar if you are after *gilvago*. But this moth has its years, being absent sometimes for several seasons in succession. Keep an eye open for *C. erythrocephala* and *G. lamda* when sugaring this month. You never know . . .

Those who want to breed the Lappet Moth should get busy with their beating-trays in October. As a rule the young larvae prefer (at least in my part of the world) small hawthorn bushes from two to four feet high, to hedges. Open grassland with stunted bushes is usually tenanted by these larvae, which tumble into the tray unharmed if the tray be put on the ground and a good whack administered to the opposite side of the bush. This is one of the few species for which one *must* use the beating-tray, since these small and intensely procryptic larvae spend the day low down in the heart of the bush, on the undersides of the lowest branches. Only once have I found it by sight—a youngster who for some reason changed his position while I was staring at the bush. *C. glaucata* is also to be had now, usually in plenty, by beating hawthorn hedges.

In a year which has had a late spring the larvae of *P. tremula*, *N. ziczac*, *P. palpina* and *H. furcula* are still to be found on their respective foodplants (aspen for all except the sawfly-feeding kitten). None of them is difficult to find and the man who relies on his beating-tray and stick to obtain them will find that quite a proportion of them will die in the larval stage. Also he cannot account himself a good field entomologist. *H. furcula* is the most difficult of them to find, probably because it has much smaller populations in most districts. Usually it is to be found (again in my experience) on small-leaved sawfly bushes not more than five or six feet high and when full-grown is to be found within a foot or so of the top of the bush.

October is *par excellence* the month for pupa-digging and the practice of this was dealt with in the *Record*, under the heading "Field Work", in November 1957 (vol. 69, p. 241).

O. M. H.

## Notes and Observations

**BUTTERFLIES IN PURBECK.**—On 19th August I saw the first *Colias croceus* of the season. It was a ♂ flying over the flowers of sea lavender which border the shore of Brand's Bay near Studland. During the past fourteen days *Vanessa atalanta* and *Polygonia c-album* have been fairly common. *Lysandra coridon*, *Melanargia galatea* and *Argynnis aglaia* have been very scarce. Each sunny day many *Pieris brassicae* have been coming in over the sea from a S.E. direction, that is from the 18th of August until the 26th.—LEONARD TATCHELL, Swanage, 27.viii.58.



**RHODOMETRA SACRARIA L. AND OTHER MIGRANTS IN INVERNESS-SHIRE.**—On behalf of Mr. P. le Masurier, I wish to record his capture of two male *R. sacraria* in his m.v. trap at Aviemore on 13th August and 8th September respectively. The latter insect was in particularly good condition, and this may indicate that it may have bred locally, though I think the prevalence of South-Easterly winds in a spell of fine weather just previously favours immigration.

Mr. le Masurier also reports seeing several *Vanessa cardui* L. recently flying over and feeding on heather; they were not very fresh, and appeared to be immigrants. On the other hand, *V. atalanta* L. has not been seen by either of us this year. A few *Plusia gamma* L. appeared in June and have produced more offspring than usual, while *Plutella maculipennis* Curt. is present in some numbers though not a serious pest.—Commander G. W. HARPER, R.N. (Retd.), Nedaich, Newtonmore, Inverness-shire.

**M.V. IN INVERNESS-SHIRE AND SOME UNUSUAL ASSOCIATIONS.**—Acting on a hint from General Johnson I spent a few days, 15th to 19th August, collecting in Glen Moriston, which is in Inverness-shire, north of the Caledonian Canal. For the last three nights I had my m.v. trap well up the glen at about the limit of the treeline. Moths were very common, and particularly so on the 18th (a very wet night) when there must have been over 1,500 moths in the trap plus an almost solid layer of midges over the whole contents. On this night all the Noctuidae which one might expect to find at this date in the Highlands were present, with the sole exception of *Amathes depuncta*. Many of them were in numbers. As already noted by General Johnson, *Triphaena sobrina* was the commonest moth after *Apamea monoglypha*. I was surprised to see in the trap *A. exulis* var. *assimilis* (3) and *Atethmia xerampelina* (1), both on the same night. They seem most unlikely bedfellows as I should never have thought that the date of flying or locality would have overlapped.

I expect others can record even stranger combinations of insects caught flying together. I remember collecting with Kettlewell many years ago (8th June 1930) on the South Devon coast when we caught a small number of both *Hadena albimacula* and *Arenostola fluxa* (*helmanni*). If I remember rightly, one of us (almost certainly Kettlewell!) had one of each in the net at the same time.—R. P. DEMUTH, Watercombe House, Oakridge, Glos. 9.ix.58.

**CELERIO LIVORNICA ESP. IN SHETLAND.**—So far as I can discover, there is no recorded capture of this hawk-moth in Shetland, and I ought not to have delayed so long in recording a specimen, dead but undoubtedly authentic, which came to my notice many years ago.

When I was staying at Baltasound, Unst, in July 1932, I was sent for by the late Mrs. Saxby to identify a large moth which she had found in her garden in the previous May. I duly obeyed the summons, and was greeted at her house by two elderly, white-bearded gentlemen who said: "Mother will be in presently; she is working in the garden". And soon Mrs. Saxby appeared, armed with a trowel and seeming in no way burdened by her 92 years. She produced the moth, which was unmistakably *livornica* and in reasonably good condition,

though it was sad to see it crucified on a piece of board with pins through its forewings.

Mrs. Saxby was a sister of the well-known botanist Edmondston who met his death in an accident while on a botanical expedition in Peru in 1843; she remembered, as a three-year-old, saying good-bye to her brother when he left home on his last journey.—EDGAR J. HARE, Harrow Place, Pinden, Dartford. 2.ix.1958.

**FRENCH LARGE COPPERS IN ENGLAND.**—In the January number of the *Record* (70: 11) 'An Old Moth-Hunter' contributed an article headed "Large Coppers in Picardy" and towards the end he suggested that since *dispar* was not uncommon in the marshes of the upper Seine up to about 1918, and therefore could be bought for shillings towards the close of the nineteenth century, it was possible that some of these French *dispar* were brought to England and sold, for pounds, as British.

Chancing to take up a copy of vol. 8 (1896) of the *Record* I found, at page 88, a report that an advertisement had appeared in a magazine called the *Exchange and Mart* in May 1896 which was as follows: "Butterflies—Three large English Coppers, alive, splendid specimens; also two Camberwell Beauties, alive. What offers, cash?—J. W. Tattersall, 17, Cagneau Street, Liverpool". Later in the year Mr. Tattersall disclosed that the Large Coppers had been taken "in the neighbourhood of Beaumaris, North Wales", and that he had sold them "to a gentleman who refused to give his name and address". It is possible that these three *L. dispar* had come from the Continent; for I have found no evidence that "large English Coppers" occurred in North Wales so late as 1896.

I found also, in vol. 5 of the *Record* (1894, p. 152) that two specimens of *L. dispar* were sold at Stevens' auction-rooms on 22nd May 1894 for £10. There was nothing remarkable about this, as the price was about the average for fine specimens of English *dispar* at that time. But the seller was a Mr. A. Edmond, and the collection contained a number of rarities—7 *P. daphidice*, 5 *V. antiopa*, 4 *A. lathonia*, 4 *D. euphorbiae*, 6 *D. galii*, 1 *D. livornica*, and 10 "very fine" *D. galii* caught (not bred) at Eton, with 2 *E. ilicifolia* caught by Mr. A. Edmond at Ascot. This was followed a week later by the sale of 4 more *E. ilicifolia* captured by Mr. Edmond at Ascot, 8 *P. polygrammata* taken by Mr. A. Edmond in the neighbourhood of Windsor, and 10 more *D. galii* caught at Eton.

These somewhat unusual events suggest that the "Mr. A. Edmond" was the same person as he whom I mentioned at page 275 of this magazine last December (*Ent. Rec.*, 69: 275). If this be so, and the two specimens of *L. dispar*, perhaps caught by Mr. Edmond at or near his butterfly-farm at Windsor, could be traced it would be interesting to hear the opinion of the South Kensington authorities about them. They may even be in the National Collection, for I have no information as to the buyer.—P. B. M. ALLAN.



# Of great and small

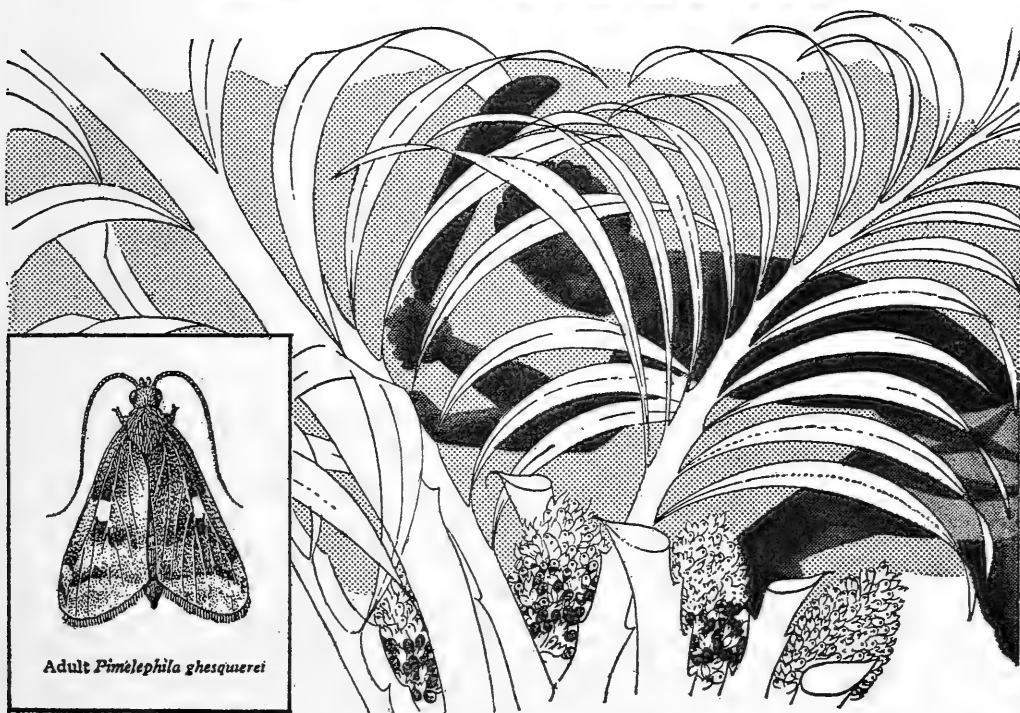
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## EXCHANGES AND WANTS

*Cambridgeshire Lepidoptera*.—Records wanted for new County list in preparation. Butterflies, Pyralids and all Chippenham fen records particularly wanted. Full acknowledgment will be given.—*Brian O. C. Gardiner, 43 Woodlark Road, Cambridge.*

*Wanted*.—An examination of the Coleoptera section of the General Science Museum at Merchant's Taylors School shows that there are a great many gaps in it. Can any Coleopterist readers of the *Record* assist by sending some of their duplicates?—*G. Lucas, 17 Munden Grove, North Watford, Hertfordshire.*

*For Sale*.—Aberrations of *A. caja*.—*R. G. Todd, West Runton, Cromer, Norfolk.*

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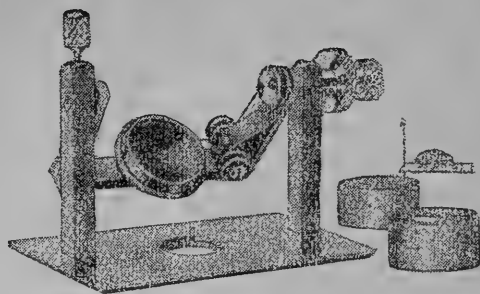
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## Some Notes on the 1958 Season

By Air Marshal Sir ROBERT SAUNDBY, K.C.B.

I have no record of a season which began so slowly in the South of England as 1958. Apart from a few early emergences in January and February during a mild spell, it was not until 8th April that any appreciable number of moths came to my light trap, and then the total was no more than 32. On the whole, where I live on the borders of Hampshire and Berkshire, spring moths were scarce.

In January I found a larva of *Pararge megera* L., during a snow-storm, on the side of a bucket in my garden. It was clearly about to moult. When brought indoors it did so, and afterwards fed well on a coarse grass and grew rapidly. It pupated towards the end of March and emerged, a female, on 23rd April.

May was a poor month, numbers in the trap varying from a maximum of 55 to as little as 4. The total trapped in May was about one-third of my average for that month. But conditions always seem to suit some species, and last May it was *Hepialus lupulina* L. that appeared in unusual numbers.

With the coming of June things improved and numbers soon began to exceed 100 a night, reaching a peak figure of 295 on 16th/17th June, which included one rather worn *Heliothis peltigera* Schiff. Although an improvement, this was still well below the average.

An expedition to the Wiltshire downs on 11th June showed that the spring brood of *Lysandra bellargus* Rott. was scarce, though *Cupido minimus* Fuesl. was plentiful, and *Procris globulariae* Hb. not uncommon in its particular haunt. It seems to me that *bellargus* is losing ground, no doubt owing to the spread of cultivation on the downs. It appears to favour south-facing slopes and I fear that it may not be long before it becomes a very local insect with a markedly discontinuous distribution. It may even be in danger of extinction. I would be interested to know what others think about this.

On 25th June I left for Scotland. In the Loch Tay district of Perthshire and around Kinlochranoch I found almost everything about a fortnight late. The weather, for the first half of July, was exceptionally good, and there was plenty of sunshine on the high ground. *Erebia epiphron* Kn. was about in its usual habitat, but I find it very hard to come by females of this species. Even those which one does find are often more worn than the males. It is odd to find *Argynnis selene* Schiff. above 2,000 feet on open grass-land on Ben Ghlas, but I see them every time I go there in early July. I could not find *Psodos coracina* Esp. in a place where it is known to occur, but of course it is much less common in 'even' years, and any way I was probably too early for it.

I am very interested in the Highland forms of *Polyommatus icarus* Rott., and when I moved in mid-July to the west coast north of Ullapool I was able to continue this study and also to obtain some of the small, dark, richly coloured form of *Eumenis semele* L. that inhabits rocky places on the west coast of Ross and Sutherland. They are very hard to capture, as they never seem to venture away from the huge piled-up boulders and seldom, if ever, settle on anything else. Also, they soon become chipped and worn, and it is necessary to catch them as soon as possible after emergence.

Up till the end of July everything continued to be late in its appearance, and I left for Aviemore on 30th July before seeing any *Apamea assimilis* Dbld., though in 1954 it was almost over by 4th August. From Aviemore I made a successful expedition into Rothiemurchus Forest for *Itame fulvaria* Vill. (*brunneata* Thun.). The weather remained excellent, with plenty of sunshine by day, and often mild and cloudy by night. A few *Triphaena sobrina* Bdv. in really good condition came to my light-trap at Aviemore. On 3rd August, on a hot afternoon in a rough field bordering the Spey, females of *Erebia aethiops* Esp. were emerging, which gave me a chance of obtaining some in splendid condition.

On my return home on 10th August, I was pleased to find *Nymphalis io* L. about in considerable numbers on my buddleia. Last year I saw only one during the whole season. On 15th August, one *Eustrotia uncula* Cl. came into my light-trap, a new record for my garden. Numbers were by now well up, and on the night of 19th/20th August, 840 moths were in the trap.

By September numbers began to fall off, and for the month were not much more than half my average. An immense horde of *Plusia gamma* L. passed my way between mid-August and mid-September and accounted for a large proportion of the number trapped. Without them and *Amathes c-nigrum* L. the September total would have been poor indeed. So far, many common autumn moths, such as *Cirrhia icteritia* Hufn. and *Citria lutea* Strom., have been relatively scarce, and I have not seen even one specimen of *Cirrhia gilvago* Schiff. or *Catocala nupta* L. On the other hand, both *Agrotis ipsilon* Hfn. and *Peridroma porphyrea* Schiff. (*saucia* Hb.) have been unusually common.

1958 has been, in my experience, a very patchy year, with most species less abundant than usual, and some common ones quite scarce. There was a great contrast between the weather in July and August in the north and the south. But in southern England, at any rate, those species that like dull, cool, wet weather should have done well.

## Migrant Lepidoptera in Co. Dublin, 1958

By E. S. A. BAYNES, O.B.E., F.R.E.S.

In spite of the cool wet summer, 1958, from the beginning of June onwards, has been notable for the number of different species of migrant moths observed in this part of Ireland. Except where otherwise stated, the following insects were noted in the mercury vapour moth trap operated in my garden at Glenageary.

*Herse convolvuli* L. One *convolvuli* was found in the trap on the morning of 1st September.

*Macroglossum stellatarum* L. This species has been scarce in Ireland during the year. Records for Co. Dublin are dated 24th June, 4th July, 5th August, 10th and 11th September (P. Williams and O. Merne).

*Laphygma exigua* Hb. The first worn specimen appeared on the night of 5th/6th June; and two more on 1st/2nd July. A fine fresh moth was taken on 20th/21st July, and further, more or less worn examples, on 29th/30th July, 16th/17th August, and 9th/10th September. Seven specimens in all. During the past 8 years, only two appear to have been noted in Ireland, one in 1952 in Co. Clare (R. M. Mere), and one in 1953 in Co. Dublin (E. S. A. Baynes).

*Heliothis peltigera* Schiff. Very few *peltigera* have been noted in Ireland in previous years, and none, apparently, from Co. Dublin. Five were taken at Glenageary this year, on 5th/6th, 13th/14th (2), 15th/16th and 16th/17th June. A further specimen was taken at Monkstown, Co. Dublin, on 15th/16th June (P. Williams).

*Plusia gamma* L. This species began to appear in the m.v. trap on the night of 7th/8th June. All were pale, and mostly worn, and it soon became evident that a considerable immigration was taking place. The moths continued to appear in varying numbers throughout June, July and early August, but on 27th/28th August, and subsequently, increased numbers of large fresh specimens appeared, probably locally bred. There were 62 in the trap on the night of 27th August, and 54 on the following night. On 2nd/3rd September there were 94, and, all through September, up to the time of writing, large numbers have continued to arrive in the trap. Reports of the abundance of *P. gamma* in other parts of Ireland, have been received.

*Rhodometra sacraria* L. On the morning of 6th September I was delighted to find a fine male specimen of *S. sacraria* in the trap. Two more males, in equally good condition, were found on the morning of the 12th of the same month. All three moths have the diagonal streak of a brownish colour. Donovan ('A Catalogue of the Macrolepidoptera of Ireland', 1936), mentions a record at Killarney in 1864 (Birchall), and another in Co. Cork in 1898 (Rev. R. J. F. Donovan). I am not aware of any subsequent Irish records.

*Palpita unionalis* Hb. One *P. unionalis* was in the trap on the morning of 12th September. A previous specimen was taken in the same way at Glenageary, on 7th September 1955. Prior to that, there appears to have been only one Irish record, namely, at Cork (*British Pyralid and Plume Moths*, by Bryan P. Beirne).

*Nomophila noctuella* Schiff. *N. noctuella* was more numerous at Glenageary this year, than in any year from 1950, when records were first kept. About 180 specimens were recorded between 18th/19th May and 20th/21st September. The previous highest count, at Glenageary, was 39 in 1955.

*Pyrausta martialis* Guen. (*ferrugalis* Hb.). Fifteen examples of this small migrant were counted between the middle of August and the middle of September. Most of them were faded and worn.

*Plutella maculipennis* Curt. A remarkable immigration took place about 2nd July, when hundreds of thousands of *P. maculipennis* appeared in the coastal areas of Co. Dublin, particularly on the north and south sides of Dublin Bay. The moths seem to have been especially numerous in the Blackrock, Glenageary and Ballybrack districts, and were reported even from gardens in Dublin itself. Hundreds appeared in my m.v. trap during the nights of 2nd, 3rd and 4th July, after which, the numbers gradually declined until the night of 26th July, when 6 were recorded. Subsequent enquiries produced evidence showing that the invasion extended along the coast to Cos. Down (A. W. Stelfox) and Antrim (W. S. Wright) in the north, and, in the south, to Co. Wicklow, where, on the 4th July, they were reported "in clouds" at Greystones (Miss E. Fitzgerald), and on 8th July, at about "40 to the  $\frac{1}{2}$  acre" at Newtown Mountkenedy (Mrs. de Caen). The moths penetrated, also, at least as far west as Cos. Westmeath (Major T. R. H. Smyth) and

Offaly (Mrs. Lightfoot). Enquiries made in Cos. Wexford and Waterford in the extreme south produced no evidence of the moths having been seen there. It is clear, therefore, that the immigration extended along the east coast of Ireland from Co. Antrim in the north, to at least as far south as the northern half of Co. Wicklow.

In contrast to the numbers of immigrant moths recorded, immigrant butterflies have been exceedingly scarce in Co. Dublin this year, and, indeed, in all parts of Ireland. Records of only 4 *Vanessa atalanta* L. and 3 *V. cardui* L. were received from observers in Co. Dublin during the first half of the year. Both species, however, have been appearing in moderate numbers during August and September. One specimen of *Colias croceus* Fourcr. was taken in the county on 4th September (P. Williams).

September 1958.

2 Arkendale Road, Glenageary, Co. Dublin, Elre.

## High Lights in a Bad Summer

By H. SYMES

Few tears will have been shed over the summer of 1958, which was even worse than its two predecessors, and they were bad enough. The prolonged cold spell in the spring ensured that it would be a late season. A visit to Hod Hill was made on 2nd May, and a number of larvae of *Euphydryas aurinia* Rott. were seen, most of them scurrying around in search of their food plant, the leaves of which were much less conspicuous than is usual at this date. Nothing was seen on the wing, except one or two *Pararge egeria* L. at the foot of the hill.

On 20th May I went to the woods in South Wiltshire with Brigadier Warry and Miss Pengilly, from Weymouth. Our main objective was the larva of *Apatura iris* L., but careful and prolonged search failed to find any, even on a bush where a larva had been taken in each of the two preceding years. A few oaks (whose leaves were very backward) and willows were beaten, and the most interesting larvae obtained were one *Trichiura crataegi* L., one *Pseudoips prasinana* L. (*bicolorana* Fuessly) and two *Brachionycha sphinx* Hufn. One of the woods was full of nightingales.

On 9th June I met Brigadier Warry and Miss Pengilly at Hod Hill, where we found *E. aurinia* and *Lysandra bellargus* Rott. in good numbers: the latter was freshly out and there were few females. No aberrations were seen, except one *E. aurinia* with a tendency to albinism in two wings. I noticed that a good many of this species were undersized, due no doubt to the food shortage which I had observed on my previous visit. Of other species that we hoped to see, *Hamearis lucina* L. and *Callophrys rubi* L. were absent, *Cupido minimus* Fuessl. was scarce, and *Aricia agestis* Schiff. fairly plentiful. One or two *Euclidimera mi* Cl. and *Ectypa glyphica* L. were seen, but no *Parasemia plantaginis* L. I spent the night with Brigadier and Mrs. Warry at Upwey, and he set up his m.v. light in the garden: twenty-seven species were recorded, but nothing outstanding. Next day we went to Portland, where we found *C. minimus* abundant, and *L. bellargus* scarce. A fine *Vanessa cardui* L. was seen, in good condition. Bee orchids were much in evidence. On the way back, a halt was made at the

Chesil Beach. Here, beside the railway, one *Heliothis peltigera* Schiff. was taken, and another seen. *E. mi* was very plentiful and in fine condition. That night, Brigadier Warry took his m.v. light to the garden of a friend living on the eastern outskirts of Weymouth, and five *H. peltigera* were taken: at least one other got away rapidly and retired to the top of a *Cupressus macrocarpa*. About the same number of species were recorded as on the previous night; the most interesting of them was *Leucania obsoleta* Hb., only the second to have been recorded from Dorset. Next day Brigadier Warry and I visited a locality in North Dorset where earlier in the season he had noticed larvae of *E. aurinia* moving along the roadside, presumably looking for their food plant. We found a fair number of the butterfly in a restricted area; they did not seem so fresh as those we had seen two days ago at Hod Hill, and many of them were undersized. I was lucky enough to take a nice aberration with its underside exactly like fig. 5 on plate 65 in "South", but it is a very small specimen. I also took a very fresh female *Argynnis selene* Schiff., and we found half a dozen larvae of *Orthosia miniosa* Schiff., but these all turned out to have been 'stung'.

The weather during the next fortnight was very unsettled and I did not do any field work. On 24th June my wife and I went up to Scotland for two weeks. The first was spent at Aviemore, where Mr. and Mrs. Le Masurier made us very comfortable. We travelled by the night train and as we journeyed through the Drumochter pass, it was very cold, wet and windy, and the outlook was forbidding indeed. We reached Aviemore in time for breakfast, and later in the day the weather improved and we walked along the well-known locality for *Aricia agestis* ssp. *artaxerxes* Schiff. It was not to be seen. Next day the rain fell without ceasing, but the day after that was fine, though dull and rather cold. In a walk round Loch an Eilean, we found ten large larvae of *Lasiocampa callunae* Palm. and also seven noctuid larvae exposed on the top of the heather. I could not identify these at the time, but I showed them to Mr. Philip Le Masurier and we decided that they must be *Amathes agathina* Dup. According to the books they should have been lurking in concealment at the bottom of the heather by day, and I think their irregular behaviour was due to the fact that they all proved to have been 'stung'. I have noticed that other larvae behave abnormally after being stung; for instance, all except one of the larvae of *Thyatira batis* L. that I have found fully exposed on a bramble leaf by day had been stung, and this applies to all the larvae of *Apatele aceris* L. that I have found wandering about on a tree trunk or neighbouring fence instead of being in their normal position on the underside of a sycamore leaf.

Not far from the shores of the loch we found a profusion of *Trientalis europea* L., with its beautiful starry white flowers resembling in size and shape those of the closely related scarlet pimpernel. On our way back to Aviemore I saw much the largest sallow that I have ever seen anywhere. It was growing in a belt of trees, mainly beech and sycamore at the roadside, and it had the habit and the size of a forest tree. It had no low branches and I should never have suspected that it was a sallow had I not observed that the ground nearby was covered with fallen catkins. On the next day, the sun broke

through in the afternoon, and *A. artaxerxes* was reported to have been seen, so as the following morning was warm and sunny we went out to look for it, and after a very slow start, succeeded in taking a dozen freshly-emerged specimens. I had visited this locality two or three times in the first week of July 1949, but had not found *artaxerxes*, although it was an earlier season than this. But I had found a very fair number of *Odezia atrata* L. in this locality, whereas this year I did not see one. Two days later, I went back and took another dozen *artaxerxes*.

One of my main objectives had now been attained: the other, *Erebia epiphron* Knoch remained. When one has reached a certain age and is very anxious to fill the space in one's cabinet reserved for this species, it is essential to know of a locality where one can find it without the stiff climbing that is inevitable in reaching its haunts in the Lakeland mountains. (It is nearly fifty years since I climbed Sca Fell Pike on a blazing hot day, passing en route one of the localities for *epiphron*, but as it was August, there was, of course, no sign of the butterfly). When I left Aviemore for Pitlochry, where we spent our second week, I had been given such excellent briefing that I felt confident that, given good weather, success would be mine. I arranged for transport to a locality in the Ben Lawers area on 4th July. We were enjoying a spell of glorious weather, and when we set out in the morning it was such a perfect day that I had no misgivings about what conditions were likely to be, even on a Scottish mountain. We arrived at the right spot about 11.30 a.m., b.s.t., got out of the car, and had taken only a few steps before I saw my first *epiphron*. The remarkable thing was that I had to walk *down* from the road to catch it. The species was not exactly abundant, and was more active on the wing than I had expected, possibly owing to the brilliant sunshine and fresh breeze, but it was in very fresh condition and I was able to secure a nice series. I also took one *Parasemia plantaginis* L. var. *hospita*, a fine large specimen in perfect condition. The collecting ground was marshy and there was plenty of butterwort (*Pinguicula vulgaris* L.) in flower.

Since seeing *epiphron* in its native haunts, I have re-read with additional interest the articles in the *Record* (vols. 68 and 69) dealing with the possible survival of this species in Ireland. One has heard of a variety of reasons for the extinction of a species: the "greed of collectors", draining of fens, felling of forests, cultivation of marginal lands, heath fires and building development, but the piety of pilgrims is certainly a new one.

I returned to the South of England amazed at my marvellous luck with the weather in Scotland. On 15th July I met Brigadier Warry and Mr. Percy Cue, who had come down from Ashford, in one of the localities for *Coscinia cribraria* L. After a few minutes, I flicked my net at a passing moth and found that I had taken a *cribraria*. It was the only one we saw that day, but we each took a *Heliothis maritima* Grasl. On 17th July we found *Thymelicus actaeon* Rott. in fair numbers at Corfe Castle. Towards the end of the month the weather broke and no reminder is needed of conditions throughout August. But in spite of this, there were more Vanessids about than last year. On 2nd August a very fresh *Polygonia c-album* L. visited my Buddleia, but was not seen again. On 15th August I saw three *Nymphalis io* L., two *V. atalanta* L. and

two *V. cardui* L. in my garden, and after this date several specimens of these species appeared whenever there were a few hours' sunshine. The scarcest Vanessid in August was *Aglais urticae* L., but it was the commonest in September. On 26th August I had a day's larva beating with Brigadier Warry in the Bloxworth woods. It was singularly unproductive. Even the commonest species were very scarce, and all we saw was two *Dasychira pudibunda* L., two *Bena fagana* Fab., one *Atolmis rubricollis* L., one *Apetele psi* L., about a dozen assorted Geometrids, and two larvae of a lace-wing fly.

On 2nd September, the last of four consecutive fine days, I went to Hod Hill, where I met Brigadier Warry. We found a small number of *L. bellargus*, but I do not think the second brood was fully out, as they were in very fresh condition and nearly all males; in fact I did not see one female myself. A few very worn *L. corydon* were still flying, and *A. agestis* was in good numbers. *A. urticae* was much the commonest of the Vanessids: we saw two or three *V. atalanta* and one *V. cardui*. An interesting find was a nest of *E. aurinia* larvae in a tent-shaped web. After lunch, Brigadier Warry beat the privet bushes for larvae of *Craniophora ligustri* Schiff. and obtained about a dozen: I found six by searching the underside of privet leaves. The larvae were in all stages, some quite small and one in its last skin. They all fed up very rapidly.

## A Note from Cornwall

By Colonel H. G. ROSSEL

This year has been, in general, the most unproductive since I started m.v. light here in 1954. A long winter was followed by an almost continued 'monsoon', and several species of the commoner moths were altogether absent. This I think puzzling since breeding conditions were not unusual in late 1957. My acquaintance at Pont could not operate my trap there after the early spring—the first records for the year were *Plusia gamma* L., *Xylocampa areola* Esp. and *Peridroma porphyrea* Shf. on 16th February, *Orthosia gothica* L. coming on 17th February. This was unfortunate since Pont is an ideal trapping locality. Except for the occasional migrant or visiting moth (e.g. *Spilosoma urticae* Esp.—presumably a victim to the present passion for touring Cornwall, taken on the cliff on 17th June) I think the past five seasons have nearly exhausted Bodinnick's local list. I have, however, since new growth of high bramble and fern has nearly obliterated my previous site, cut out a new track on the cliff face to an even space commanded by a large and convenient rock, where an obliging pair of adders (whose presence I have broadcasted) is usually on duty. This station (at the end of 180 yards of flex from my cottage) has given me one or two good moths and migrants already, such as *Laphygma exigua* Haw. (20th May, 9th June), *Heliothis peltigera* Schiff. (9th and 19th May) *Leucochlaena hispida* Geyer (21st August), a male *Cossus cossus* L. (11th July), the usual flight of *Lithosia quadra* L. in the second week of August, *Leucania unipuncta* Haw. (15th September), and an almost perfect *Hippotion celerio* L. on 10th September.

There were two other moths which Mr. Fletcher at South Kensington kindly identified for me. One is a peculiar aberration of *Agrotis exclamationis* L. with straw coloured fore-wings and no markings. Concerning

the other, taken in the trap on 3rd May, Mr. Fletcher writes: "Your Noctuid has proved to be the first British example of *Perigea conducta* Walker, a species of Acronictinae with a distribution similar to that of *Plusia acuta* Walker". I have given this specimen to the Museum.

On 8th June Dr. F. H. N. Smith kindly took me to a marsh near Perranporth in search of *Euphydryas aurinia* Rott. We were fortunate in finding several freshly emerged specimens, all of which were generously given me.

Again on 13th July Dr. Smith and Dr. Clarke of Knightwick very kindly motored me to a locality on the north coast new to me, where they had found *Maculinea arion* L. in previous years. We had no luck in that respect but my companions netted several *Argynnis cydippe* L., *A. aglaia* L. and *Melanargia galathea* L., which they kindly gave to complete my series. On the return journey I was able to show them a locality where I had found *Melitaea athalia* Rott. some years ago. We were glad to find this fritillary had increased since then, and each of us took a small series.

On 21st July Mr. Ford of Sheffield visited me and kindly gave me a pair of *Sphecia bembeciformis* Hübn. which he had found *in cop.* at Carlyon Bay. I was able to send him a fair number of fertile eggs from this pairing. I also had the pleasure of visits from Mr. F. W. Byers and Mr. W. H. Storey while they were on holiday in Cornwall.

My friend Mr. Puckey of Polperro now operates a m.v. trap there (six miles east along the coast) and we are beginning to think Polperro may prove as popular with moths as it is with human visitors. Some of his records are as follows:—

1956. (With blended bulb, no trap). *A. atropos* L. 2nd June.

1957. *L. albipuncta* Fab., 15th July; *P. chalcites* Esp., 2nd Sept.; *L. unipuncta* Haw., 12th Oct. to 20th Nov.; *N. obstipata* Fab., 19th Nov.; *M. unionalis* Hübn. (5), 13th to 25th Oct.; *B. sphinx* Hufn., 21st November.

1958. (With m.v. trap). *H. convolvuli* L., 28th Aug. (4 at light, 1 at rest); *L. quadra* L., 14th Aug.; *L. unipuncta* Haw., 19th May; *H. peltigera* Schf. (9), 5th May to 16th June; *P. ni* Hübn., 9th May; *L. exigua* Hübn. (22), 5th May to 2nd June; three on 12th Sept., and one on 13th Sept.; *R. sacraria* L., 5th Sept., 1 on 6th Sept., 1 on 7th Sept., 2 on 10th Sept., 2 on 14th Sept., 1 on 15th Sept.; *N. obstipata* Fab. (3), 4th to 13th Sept.; *M. unionalis* Hübn. (3), 27th July to 12th Sept.; *C. cossus* L., 6th July.

It is interesting to note that *Hada nana* Hufn. and *Apatelē leporina* L. are common at Polperro but never seen at Bodinnick.

The Bodinnick light-trap took *Herse convolvuli* L. on 18th September, while Mr. and Mrs. Archer, on holiday at Polruan with a trap, took an excellent specimen on the 20th. A third specimen, in perfect condition, was kindly sent me alive, in a jampot by a Polruan resident on 1st October.

Specimens of *Antitype xanthomista* Hübn. were in both the Bodinnick and Polperro traps on 30th September. The 'Black-banded' moth is very scarce in this area which, it has been suggested to me, is possibly its eastern boundary in Cornwall. I fancy this moth has its real home on the north Cornish coast, but now that we know it occurs at Polperro a search will be made for larvae next spring. Mr. Byers and



I could find none in this area, as previously noted. Mr. Puckey also took in his Polperro trap 3 *Leucania unipuncta* Haw. between 20th and 22nd September, two *Nycterosea obstipata* Fab. on the 17th, one *Margaronia unionalis* Hübner and two *Leucochlaena hispida* Geyer on the 2nd and 4th October.

On the only two fine days in the last week of September *Vanessa atalanta* L. swarmed on the Michaelmas daisies in my garden, together with a *Polygonia c-album* L. and a few *Aglais urticae* L. and *Nymphalis io* L. This last had been fairly common a few weeks earlier but was now almost entirely absent. I have not seen a single *Colias croceus* Fourc. this autumn.

Bodinnick by Fowey.

## Entomology in 1958 and some other Thoughts

By Dr. F. H. N. SMITH

Looking back on the past season it surprises me that there is anything to write about at all. It has rained more than usual on this coast, which is saying something, and hot days and 'likely' nights can literally be counted on the fingers of one hand. It is easier than ever to understand why the British are so adaptable!

On 23rd June I took a male *Melitaea aurinia* Rott. on the sandhills at Penhale near here. I mention it because it seems an unusual habitat. There is a strong colony of *Plebeius argus* L. there also. My friend Dr. R. H. Clarke came down from Worcestershire for a weekend's collecting on 10th July, and the following morning I took him over to Bodinnick to meet Colonel Rossel, who entertained us to an excellent lunch at the Ferry Inn and afterwards showed us his interesting collection. He showed us a Noctuid, taken at Bodinnick, which none of us recognized, and I think you will hear more about this, if you have not already done so.

The 13th July duly dawned very foul, but in accordance with previously laid plans I drove over early to bring the Colonel back to Perranporth, whence we all three proceeded to a locality in North Devon in the hope of seeing *Maculinea arion* L. The sun began to struggle out at intervals, but I think not for long enough to make *arion* fly, and we saw none. In my limited experience of the species it is a waste of time trying to find it in dull weather, and even on a sunny day the chances of seeing it after about midday are poor. *Eumenis semele* L., *Melanargia galathea* L. and *Argynnis cydippe* L. were flying in numbers.

Mercury vapour light at Chyverton woods, our only respectable bit of woodland in the vicinity, on the night of the 14th July produced 69 species, only two being of any note, namely *Hadena suasa* Schiff. and *Comacla senex* Hb. On the 19th I took a specimen of *Aglais urticae* L. with most of the normal colour replaced by pale buff.

From that date until the end of August collecting was a frustrating business on account of constant bad weather. While on holiday in the Midlands I turned my attention to fossil insects, and it was pleasant to ignore the barometer for a short time. My object was to find what was described over a century ago as the "Insect Limestone" by the Rev. P. B. Brodie, an energetic pioneer in this field. Most

of the quarries he mentions in his book are now quite overgrown, but I eventually found one of them, near Stratford-on-Avon, in which some diligent work with a billhook revealed a fair exposure. I spent three afternoons here, and split open a lot of rock! It yielded six beetle elytra, two wings which I think are dipterous, ? an abdomen and thorax with what looks like a leg, about the size of an ant, one quite good leaf, and three or four formless remains which seem to be chitin. This layer of limestone lies at the base of the Lower lias, which is the earliest of the Jurassic deposits, and therefore about 150 million years old. My excuse for such 'useless' trophies is simply the satisfaction of finding them after such a long time, and the sense of perspective which they induce.

On 29th August, in Perranporth, I saw *Herse convolvuli* L. at the tobacco plants, and a surprise at the m.v.l. on the 31st was *Nonagria sparganii* Esp., Webb's wainscot. The night of 5th September was warm, with a gentle south-easterly breeze and some fine sea-mist. By dawn it was quite evident that there had been an immigration, for the side of the house, which is white, was covered with *Plusia gamma* L. I have never seen so many moths at one time, and inside the trap I counted 800. Standing room only! In all there were about 1,500, and among them were a male *Lithosia quadra* L., a perfect *Leucania vitellina* Hb., and a massive male *H. convolvuli*, also about half a dozen *Peridroma porphyrea* Schff. and one *Margaronia unionalis* Hb., the first time I have seen the latter.

A week later, the 12th, there was another swarm of *P. gamma*, numbering about a thousand, but without any of the desirable trimmings of the previous occasion. Subsequently *H. convolvuli* came either to m.v. light or to tobacco blooms on 13th, 17th, 21st (the only female), and 30th September. *Nycterosea obstipata* F., male, turned up on 17th September, and 6 males and 1 female on 1st October.

The only migrant butterflies have been *Vanessa cardui* L., the largest number seen on one occasion (5th September) being 10, otherwise in ones and twos since that date, and *Colias croceus* Fourc., of which I have seen a solitary specimen flying north across my garden on 2nd October.

So much for my experiences of this season. When looking through my old 'logbook' the other day I came across an entry written in 1940, which I copy word for word. It is quite unsophisticated:

"The second day I was at Bruton, I went to see Mr. Coney's collection; he lives at Batcombe, about three miles from Bruton. He has a wonderful collection. He has caught nearly every species of British macrolepidoptera and a tremendous amount of 'micros'. He has a sixty-draw cabinet for rhopalocera, and has one draw for each species. He has about twelve purple emperors. Above all every single antenna is in place and all specimens are set perfectly! The whole collection literally is wizard. It must have taken years to make up. He has a little hut with about 40 larva-cages in it for breeding, etc. Anyhow at the end of our first visit he asked us to tea in about 4 days, and said "bring some store boxes for some of my duplicates"—I was literally stunned! After that we thanked him profusely and fairly crashed back with the glad tidings. On Saturday the 10th August 1940 (a day I'll never forget) we went to Batcombe armed with store boxes. We immediately started being given the duplicates. We used tweezers for the bugs and he more

or less let us choose what we liked. He had the duplicates in about 25 medium sized store boxes. It was wizard waiting to see what the "next one" contained. Anyhow, the list of what I got is on page 345. We thanked him even more profusely this time, and this time we went back to Bruton at about two miles per hour".

G. B. Coney certainly had a wonderful collection, and amongst a long list of insects species such as *Melitaea athalia* Rott., *M. cinxia* L., *Carterocephalus palaemon* Pall., *Lysandra coridon* vars. *fowleri* and *semi-syngrapha*, *Hyloicus pinastri* L. and *Xylomiges conspicillaris* L. (both bred) stand out as evidence of his great generosity. In looks he greatly resembled the bearded gentleman with a net on the front of Newman & Leeds' *Textbook of British Butterflies and Moths*. He had a great sense of humour, and I remember the twinkle in his eye as he carefully took out a drawer containing some real rarities. These he used to call "juicy bargs". I forget exactly when he died, but I think it was three or four years after that most memorable occasion. His collection is now in Bristol Museum.

Perranporth, 3.x.1958.

## A Short Holiday Trip to Spain, 1958

By Dr. NEVILLE L. BIRKETT, F.R.E.S.

Having spent two very happy holidays in Spain in the years before the Civil War my appetite for the country was whetted, and when it was proposed by friends that we should visit that country I needed no second bidding. My early visits, each of a month's duration, were devoid of entomology and my only insect memento of those occasions is a nice *Papilio machaon* L. taken near Valencia. I also have memories of *I. podalirius* L. flying about the streets of that city. Our trip this year was not to take us as far as Valencia but only to the very popular Costa Brava region of Cataluña. In the eyes of many this hardly even counts as part of Spain and during the aforementioned Civil War there was a bid to procure the independence of the state of Cataluña. The reasons for the popularity of the Costa Brava are not far to seek when one remembers that there is usually good weather, fine scenery, fine sea-coast with excellent swimming facilities and, not least, one can live very comfortably for a little over a pound per day.

Yet in spite of present popularity and in spite of the large numbers of English visitors to the area I have seen little published concerning the entomology of that part of Spain. The recently published note by our editor has spurred on the production of the present contribution. A scan through available literature before going to Spain was not reassuring as I found almost nothing concerning lepidoptera from Cataluña. In fact the only really relevant note was that published in the *Record*, 1902, pp. 10-12, by Mrs. Mary de la B. Nicholl. She spent three days in the latter part of May 1901 at Caldas de Maravella which is a short distance inland from the beautiful but over-crowded resort Tossa de Mar. While noting that she was too early for the principal butterflies she records about a score of species which she saw or took. She had hoped to visit the Montseny area, which is only half the distance from Barcelona, but snow on the higher ground deterred her. However she goes on to record some 54 species taken there in two days

collecting by a Mr. Witty in late June 1900. I was not able to visit Montseny so cannot report on its present status as a habitat for butterflies.

We left Dover on the late afternoon boat on 20th June and made a fast run to Abbeville where we stayed the first night. The next day we motored without any great rush and covered nearly three hundred miles, landing us for the night at the very picturesque town of Argenton-sur-Creuse. The gastronomic specialty of this town seemed to be escargots but none of my party was in a mood for culinary experimentation. Sunday, the 22nd of June, we planned to get through into the area of the Pyrenees and we did succeed in doing this but it was a frightful day. The rain was continuous from just south of Limoges almost to Toulouse and hopes of being able to sample something of the viatical butterfly fauna of the region were soon dispersed as the main aim to get south out of the "English" weather became uppermost in our minds.

We reached Foix rather late and found the only decent hotel full. We had to take very much second best and a tardily served meal with much grease and garlic was not a good end to a day of tiring motoring through the wet. However, the 23rd dawned very fine for what was to prove one of the best days of the holiday motoring through the Pyrenees and through Spain as far as Palafrugell—our holiday destination. [Incidentally anyone finding himself at Foix about evening and wanting hotel accommodation should press on the extra twenty odd miles to Ax-les-Thermes where there seemed to be an abundance of decent looking hotels.] The road crosses the Col du Puymorens with magnificent scenery quite equal to the Swiss Alps and the day we crossed was gloriously sunny and with splendid views. Time dictated that we should not be able to visit Andorra and from my point of view that was a good thing because our lunch stop—at Porté a few miles south of the summit of the Col—provided some excellent collecting. The altitude here was about 4,000 feet and insects were abundant so that I was kept very busy for nearly two hours while my companions had a picnic—I hardly had time for food on this occasion. The following insects were seen and/or taken here:—

*Hesperia alveus* Hbn., *Augiades venata* Br. & Gr., *Cupido minima* Fssl., *Nomiades semiargus* Rott., *Polyommatus icarus* Rott.—a rather well-marked though worn female only, *Cyaniris argiolus* L. appeared to be common; *Parnassius apollo* L. was quite common but difficult to catch on the steepish slopes; *Euchloe euphenoides* Stgr.—many seen but again owing to the nature of the terrain not easy to contact. *Colias australis* Vrtz.—a few seen and one taken. *Gonepteryx rhamni* L.—a few seen. (I did not see any *G. cleopatra* here, though saw many later). *Proclossiana aphirape* Hbn.; *Clossiana selene* Schiff.; *Mellicta athalia* Rott.—a few seen and one only taken; *Melitaea didyma* Esp.; *Pyrameis cardui* L.—a few seen; *Pieris brassicae* L. and *P. rapae* L.; *Colias croceus* Fourc.; *Pararge moera* L.—a single specimen only taken. This is considerably smaller than a short series I have from Lauterbrunnen and also the whole upper surface facies is lighter in colour and in particular the yellow surrounding the pupillated spots of the hind-wings is much brighter and of greater area. This form seems to approach Hübner's *adrasta*. *Coenonympha arcania* L.

was common and just out; *Erebia epiphron* Knoch.—one specimen only; *Erebia medusa* Fabr.—two rather worn specimens taken; *Erebia meolans* de P. (*stygne* Ochs.)—was common and freshly emerged. I took a short series of beautifully bright specimens.

I was not specially looking for Heterocera but did get a fine fresh *Heliothis peltigera* Schff. flying in the bright sunshine and also a specimen of a species of *Cleophana* Boisd. (I think).

This little interlude of collecting at *circa* 4,000 feet in the Pyrenees certainly whetted the appetite for more and I hope to return again to those mountains for a more extended collecting trip. It cannot fail to be interesting.

After crossing the Spanish frontier at Puigcerda we then traversed another considerable pass rising to nearly 6,000 feet—the Puerto de Tosas. This was a fine interesting road with wonderful views and the hillsides were covered with a species of large broom in full flower. A few stops for photographing did not allow time to collect insects. We also, from here to our destination, experienced the mixed nature of the Spanish roads. Admittedly most of them were actually classified as third class so we could not expect much. However part of them would, in England, have been noticed as “Not fit for cars”. We reached our destination the Hotel San Sebastian situated on the Cabo San Sebastian just outside the small town of Palafrugell at 8.30 to find a huge wedding party in progress and also that our arrival, though we had booked rooms months before, apparently not expected! However in Spain on occasion one comes to expect this sort of thing and with many a “un momento” and much semblance of efficient bustle we were at last shown to our rooms. At the usual Spanish hour of about 10 p.m. a very good dinner appeared and all was well with our world. We stayed in this place for a week.

The countryside around Palafrugell is fairly well cultivated and where this is not the case there are extensive pine woods and many cork trees. The latter after they have had the bark removed from the lower five or six feet look rather unsightly but these bare trunks are a feature of the landscape and show the nature of a staple local industry. At Palamós there is a large factory where the cork is processed and prepared. From the entomological point of view I found the area disappointing as to number of species though there was a good number of individuals of those species that were present. Since the holiday was not primarily a collecting one, but one on which I wished to taste of the many delights of this colourful land, the amount of collecting done was very limited. Much of it was carried out in the immediate vicinity of the hotel where it was nice to see an abundance of the large Satyrids. The following short list indicates most of the interesting species I came across—and I’m quite sure more intensive collecting would have produced very many more. However, short as it is, it may prove of interest to other entomologists who contemplate a trip to that district.

*Thymelicus actaeon* Esp. was common; *Lampides boeticus* L. occurred along the whole of the Costa Brava and was common everywhere being one of the commonest butterflies in evidence; *Thecla esculi* Hübn. was common in the woods about the Cabo San Sebastian and near the picturesque town of Bagur; *Papilio machaon* L. was just appearing and numbers were seen in various parts of the area; *Leucophasia sinapis* L.

was also very common; *Colias croceus* Fourc. common; *Gonepteryx cleopatra* L. This fine butterfly was frequent along the whole of the Costa Brava as far as I could determine. It is a most elegant butterfly and greatly enhances the beauty of a countryside. *Melitaea didyma* Ochs. was common in the Palafrugell area; *Pyrameis cardui* L. was common everywhere and while on the matter of migrants the moths *Macroglossum stellatarum* L. and *Plusia gamma* L. were abundant everywhere. Especially where Bourgainvillia was growing there one would see many *stellatarum*. *Pararge megaera* L. was common. Perhaps the most obvious and elegant butterflies seen were *Satyrus circe* Fab. and *S. hermione* L. These were all over the area especially in the many pine woods and it was common to come out of our hotel door and find them flying round the hotel or settling on Scabious in the grounds. When occupied on the flowers they were not difficult to catch and I also found that if one saw one flying towards one by standing absolutely still it would approach with a view to settling presumably taking one for a rather odd sort of pine tree. *Eumenis semele* L. was common; *Epinephile ida* Esp. was common taking the place in Spain of *tithonus* in England. It is very similar in appearance to *tithonus* and seemed to be common everywhere. *Epinephile pasiphaë* Esp. I took two specimens of this near our hotel. They are both rather worn and the few others I saw were also passé. *Melanargia lachesis* Hb. was common all over the area.

This constitutes my main observations—a rather short list but I found butterflies none too common there. I shall be extremely interested to hear of experiences and captures by others in the same area.

It may be of interest to add that for those contemplating going on a collecting trip to Spain and wanting a good list of the entomological literature of the peninsula they will find an excellent and tolerably full list in Ramon Agenjo's *Faunula Lepidopterologica Almeriense*, 1952. I did not see this volume until my return and am sorry I did not have the benefit of it prior to my trip. He gives some 270 odd references many being to rather inaccessible papers but the whole most useful.

On our return trip through France we traversed the 'Midi' but time prevented any attention being given to the butterflies. There is a wonderful amount of most promising looking collecting country in France and one can but hope one will live long enough to explore all the areas one would like to.

## An Entomologist in Yugoslavia

By RALPH L. COE

(Continued from page 240)

The time had come for me to catch the electric train from Bitola to Skoplje, about a five hours' journey. As on my way south I found this train very comfortable, although this time an unpleasant incident occurred soon after we left Bitola. We were gathering speed when a man appeared out of a wood, levelled a rifle in our direction and fired. I instinctively ducked. The bullet smacked through the carriage window about a foot above the head of a child sitting in front of me. Luckily no one was hurt. The driver put on the brakes quickly, and jumped out on the track. But the marksman had made a quick getaway,

and with the passengers excitedly discussing the strange affair we resumed our journey.

Skoplje was reached without further incident, and I made my way to the Macedonian Hotel where I had stayed before. When I asked for two nights' accommodation, however, the manager told me that every room was occupied. He advised me to try the Bristol Hotel, so reluctantly I got a man to carry my cases there. I felt dubious about this alternative as it belonged to the 'D' class of hotel, the lowest grading in Yugoslavia. However, it looked quite a decent place, and I was shown into a small bedroom on the ground floor. It had three single beds, and I asked the manager for an assurance that I would have the room to myself. He would not commit himself, but just shrugged his shoulders. I then requested a room with only one bed, but no other room was vacant. Rather than risk being without a night's lodging I made the best of a bad job and took the accommodation offered. Unpacking some of my things I spread them out on the vacant beds as there was no wardrobe or cupboard. Then I turned in. Some time after midnight I woke up to find the light on and two men in the uniform of the Yugoslavia Air Force standing by me. They were pointing to the other beds, and cursing inwardly I got up and moved my belongings on to the floor.

Taking off their uniforms they got into bed in their underclothes, talking loudly all the while. As one of them also talked in his sleep, my night's rest was pretty grim. To cap it all they rose around four-thirty, making a great deal of noise as they dressed, and left bedding strewn all over the room.

After breakfast I went out to find the British Consulate. I had promised the new British Consul, when I met him at Lake Ochrid, to call on my return to Skoplje and tell him of my experiences in southern Macedonia. Making me welcome in his office, he told me to sit down and gave me a cigarette. We had an hour's chat, and first of all I gave him a detailed account of my difficulties in getting my visa renewed in Bitola. He was very pleased to know that I had eventually succeeded in renewing it, as British subjects entering Yugoslavia from Greece had been refused visas at Bitola, being told as I was that they must apply at far-off Belgrade. He noted down the details I gave him, and said that he would quote my success as a precedent when similar troubles cropped up. Before I left, he handed me some copies of a British News Bulletin, which I was delighted to have as they provided me with my first news from home for a month.

As I strolled back along the busy main street I was intrigued to see in the centre of a shop window a large statuette of a nude man and woman in a close embrace. It was beautifully modelled, and people were standing admiring it. There were no disapproving looks or titters such as a similar exhibit might provoke at home. Further along I came across a shop devoted to the sale of lottery tickets, a feature of most of the larger towns in Yugoslavia. When a draw for prizes is in progress excited crowds gather outside these shops, for the winning numbers are chalked up on a large blackboard in the window as the lottery proceeds.

After lunch I paid a second visit to the Medicinski Fakultet on the outskirts of the city, to fetch a suit-case containing my Korculan collection of insects that I had left there for safety before proceeding to the extreme south. I can recommend other entomologists to adopt this plan



when they are going on to other places and intend to return by the same route. Besides saving unnecessary baggage it reduces the amount of jolting to which one's specimens are subjected on such an expedition. This time I was introduced to Dr. Jordanka Keckaroska-Ilieva, a charming woman who was studying the life-histories of Chironomidae. Unfortunately she knew no English, and we had no interpreter, but I spent an interesting hour or so in looking at her collection of slide and spirit material. When the time came for me to leave, all the staff gathered to shake my hand and wish me good luck.

Next morning I got up early for a last look round before catching the Simplon-Orient express train which left for Belgrade just after mid-day. I walked out of the city along a foot-path bordering the river Vardar and after a few miles reached an area of parks and playing-fields. It was Sunday, and many people were strolling about. Here and there I passed open-air cafés, where groups sat at tables drinking, chatting or engrossed in playing or watching the national pastime of chess. I stopped for some time to watch a game of soccer. The teams were obviously made up of experienced players. Their passing and general technique was excellent, but compared with English standards they seemed to lack speed, and far too many shots at goal were hasty and directed straight into the goal-keeper's arms. All too soon I had to hurry back to my hotel for an early lunch.

In good time I was at the railway station waiting for my train to arrive. I felt mounting excitement as it drew in, for the Simplon-Orient Express is one of the best-known trains in the world. Starting from Paris it proceeds for three days through France, Switzerland, Italy, Jugoslavia, Greece, and on into Turkey, completing its romantic journey of well over two thousand miles at the city of Istanbul. Owing to various adverse conditions its speed through Jugoslavia is considerably reduced, and my two hundred and eighty-four miles journey from Skoplje to Belgrade took over eleven hours. It was nearly midnight when the train drew in at Belgrade station. There on the platform to meet me were Dr. Vera Zivkovitsch, an entomologist, and Dr. Zlatibor Petrovitsch, a bacteriologist, both of the Veterinarski Fakultet in the city. They greeted me warmly, and Dr. Zivkovitsch, whom I had met in London on her visit to the Natural History Museum just after the war, told me that as Dr. Petrovitsch's family were away on holiday there was room for me to stay at his flat while I was in Belgrade. We went on there, and over many cups of coffee sat chatting into the small hours.

Next morning my kind host took me on a tour of the city. The first thing that struck me was the quietness of the streets compared with other capital cities, due to the scarcity of motor traffic. Although this is true of Jugoslavia as a whole, it was more noticeable in Belgrade. With its great blocks of workers' flats and imposing office buildings Belgrade has a mainly modern appearance. Its past history has been truly hectic. For over two thousand years, in fact since a settlement first stood on the site, it has repeatedly suffered pillage and burning, and time after time has been rebuilt. During the 1914-18 war it was bombarded by the Austrians, and in 1941 Hitler's planes rained high explosive bombs down on the defenceless city, killing over 12,000 men, women and children and causing severe damage. Intensive reconstruc-



tion has taken place in the city since the last war ended. A major post-war effort was the building of a road connecting the capital and Zagreb, a distance of 400 miles. Made of concrete, it was constructed far too hastily by an army of unpaid voluntary workers, with the result that subsidences in the subsoil have occurred at many points. Despite its defects this major highway forms a most valuable link between the east and west of the country.

During the morning we visited the Veterinarski Fakultet, where I was introduced to the director and his staff. I was impressed by their keenness, and by the modern equipment with which they worked. Afterwards Dr. Zivkovitsch took me to the Museum d'Histoire Naturelle du pays Serbe (Serbian Museum of Natural History), an unpretentious and older building. I was pleased to find among the entomological cabinets a good collection of Diptera, and spent some time in examining this material. Among the Syrphidae I found examples of *Rhingia rostrata* Linnaeus, *Xylota xanthocnema* Collin and *Neoascia obliqua* Coe, under the names *R. campestris* Meigen, *X. sylvarum* Linnaeus and *N. podagrica* Fabricius respectively. The same misidentifications occur in some British collections. All three of these uncommon species were new to the Jugoslavian list.

Dr. Zivkovitsch invited me to lunch at her flat, where my capacity for food and drink was strained to the limit by the excessive Serbian hospitality. Plum-brandy, wines and beer accompanied the eight courses, which included lavish helpings of various meat dishes. Small wonder it is said that the Serbs are the heartiest eaters and drinkers of all Jugoslavs. Round the table sat about a dozen people, and with much talk and laughter the meal continued well into the afternoon. At last we rose from the table and went into the sitting-room. Having an uneasy feeling that acute indigestion might well follow this gargantuan repast, I welcomed Dr. Zivkovitsch's suggestion to take me on a further tour of the city. We called for Dr. Petrovitsch at his flat, and all three set off. I should explain here that in Jugoslavia the day's work starts as early as seven in the morning, and from early afternoon most of the workers are free for the rest of the day. During their long leisure hours a popular form of relaxation is to sit and talk over a drink in a café.

We went by tram to the north-east border of the city, where my friends wished to show me the famous old citadel. Set in the lovely Kalemegdan ('The Field of Battle') Park with its broad tree-lined avenues, it is the most ancient building remaining in Belgrade. As we walked through the park we passed several interesting statues. One was erected in gratitude to France for her aid to Serbia in the First World War. Another, a misshapen human figure, was the work of a modern Serbian sculptor, and in its grotesqueness might have been modelled by Epstein. Climbing a steep slope, we came to the citadel. It bristles with fortifications built by the Austrians when they occupied the city during one of their wars with the Turks. High among the ramparts we looked down on a magnificent scene. Below us was the confluence of the wide Danube and Sava rivers, and as far as the eye could see stretched a vast expanse of almost featureless plains. We had tea on a flower-decked terrace in this commanding position. As we sat there I noticed in the distance two lofty steel frameworks

that thrust up from the flats along the river bank beyond the city. My companions told me that these ugly structures are nicknamed by the people of Belgrade 'The Temples of the Bureaucrats'. At the end of the war they were constructed for use as government offices, but funds were insufficient to complete the work. Furthermore, it was found that the foundations had been laid in shifting river silt. Maybe some day these blots on a beautiful landscape will be removed.

Before we left the citadel, I was shown a forbidding looking chasm in one of the massive stone buttresses. Through an obviously recently constructed iron grille the outline of a large well could be dimly seen. I was told that the Turks had the unpleasant custom of disposing of their prisoners by hurling them into it. Until a year before my visit, the place was open to the public, and sight-seers could stand at the edge and gaze down into its gloomy depths. But an enterprising citizen who was cursed with a nagging wife brought her to the spot and pushed her in. He got twenty years' imprisonment. As imitators are never lacking, and nagging wives are not uncommon, the place was sealed off forthwith.

To round off a really delightful day, Dr. Petrovitsch insisted on entertaining Dr. Zivkovitsch and myself to supper in an open-air restaurant in the park. We had some interesting dishes, including helpings of *raznici*, little pieces of tender veal skewered along a kind of tooth-pick. A mixed salad was liberally garnished with *paprikas*, the hot red pepper-pods that are a definitely acquired taste. After the main dish of *djuvec*, a kind of Irish stew, seasoned with the violent *paprika*, we cooled our burning throats with delicious whipped cream and strawberries. To finish off we had tiny cups of Turkish coffee. Altogether a meal to remember.

Early the next morning my kind and generous host saw me off from the station, where I caught a train for Sid, en route to the primitive forest of Morovic. There I spent several fascinating and exciting days, but this part of my story has already been told ('In a Serbian Forest', Coe. 1957, *Ent. Record*, 69: 181-183). From Morovic I went on via Sid by train to Zagreb, at this stage having completed the circuit of Jugolavia. By this time my funds were getting low, and I still had before me a long journey south into Croatia to visit the lovely Lakes of Plitvice for a final week's collecting. So at the magnificent Esplanade Hotel in Zagreb I asked for the cheapest accommodation, and settled down for two nights in a small but comfortable attic room.

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(To be continued)

## Notes on the Microlepidoptera

By H. C. HUGGINS, F.R.E.S.

*Pammene nimbana* H.S.: This tortrix does not seem to be well known today; most people appear to be in rather a fog concerning it and to dismiss it as a form of *P. juliana* Curt. Pierce wrote to me many years ago that all the *nimbana* he had examined were only *juliana* and others have had the same experience. I suspect the trouble is that in many collections the rather dusky form of *juliana* with obscured markings did duty for *nimbana*; I had examined a number of these with a view to

purchasing at auctions from 1930-1939 and in all cases found the insects were *juliana* except one, the Harwood collection. This contained two of Thurnall's Epping insects which were quite distinct from the usual dusky *juliana* and are at present in my possession.

There are very good figures of *nimbana* in Barrett, Plate 490, figures 4 and 4a, and a still better one in Kennel under the name of *herrichiana* Hein. I once spent most of an afternoon with my late friend William Fassnidge discussing these insects and we both came to the conclusion that *nimbana* H.-S. was a form of *juliana*, and that the very distinct insect affecting the beech (*nimbana* Barrett non H.S.) should be known as *herrichiana*.

Mr. J. D. Bradley recently informed me that he had come to the same conclusion, and for the rest of this note I shall refer to this beech insect as *herrichiana*.

My reasons for considering it distinct, apart from the superficial differences, are as follows:

(1) *P. herrichiana* appears to affect the beech only and its habits are somewhat different. On warm afternoons it buzzes round the tips of the beech boughs, at a great height from the ground. *P. juliana*, which is common on a row of oaks opposite my house, is a late evening and early dusk flier, and zigzags about the trees, both high and low, as *pomonella* does over the apples.

(2) If *herrichiana* were, as suggested, a form of *juliana*, it would surely occur occasionally among the oaks. From late June to mid August I take *juliana* almost every night in the Robinson trap but I have never seen *herrichiana* there. Also I believe *herrichiana* has only been taken in late May and early June, whilst *juliana* continues on the wing from June till nearly the end of August. The dates of my *herrichiana* are two, A. Thurnall, Harwood collection, bred May 1901, four Mickleham, 7th June 1937, one Mickleham, 2nd June 1939. The Mickleham ones were all taken in my presence by my friend Mr. L. T. Ford, who generously gave them to me. I had no pole long enough to reach them and probably could not have wielded it skilfully enough if I had.

So far as I can gather *herrichiana* has only been taken in England on the following occasions:

(1) Bred by Lord Walsingham from larvae found under moss on beech trunks at Little Kimble, Bucks. (Barrett, XI, 161).

(2) At Epping by the late A. Thurnall. He found it occasionally sitting on the trunks of beeches and afterwards bred a good many from larvae and pupae found under moss and loose bark (A.T. *in litt.*). Two years before his death, however, he made several visits to Epping to get me some larvae but failed to find any.

(3) At Mickleham by Mr. L. T. Ford and those he has kindly assisted by information and example.

So far as I recollect Fassnidge took one in Denny Wood in the New Forest and N. M. Richardson is also said to have taken one in Hants (Barrett, *loc. cit.*).

## Notes on the Tineina

By S. WAKELY

During November and even later many species of Lithocolletid mines can be collected from the trees. Even when on the ground these leaves

can be examined for mines, particularly where the wind piles them in drifts. *Tischeria marginea* Haw. larvae can be found feeding in bramble leaves all through the winter round to March. Some of the Nepticulid species also feed in November and December, and the following might be mentioned: *Nepticula acetosae* Stt. on sorrel; *N. agrimoniella* H.-S. on agrimony; *N. septembrella* Stt. on hypericum; *N. argyropeza* Zell. on aspen; while the common *N. aurella* Fab. can be found all through the winter months up to March. It is always as well to see if the larva is still present, otherwise empty mines will be collected. The larvae are easy to see if the leaf is held up to the light, and old empty mines as a rule are more conspicuous than those with larvae present.

Many species of Tineids feed during the winter in such things as the seed-heads of plants, birds' nests, fungi on trees, dead and rotting wood, and even old clothing left lying on the ground. *Monopis ferruginella* Hb. is particularly fond of the latter "foodplant", the larvae living in silken tubes in folds of the material. It is better to collect most of these items in March or April for obvious reasons.

The old-time collectors used to collect many hibernating species by beating thatch, but there is very little thatch to be found now except in hayricks. Most of the old records of *Gracillaria falconipennella* Hb. were of specimens obtained by this means. However, this method might still be tried where thatch is available.

Before closing this monthly series I should like to mention my experiences on killing and setting the smaller moths. I don't think anything is better than .880 ammonia for killing. My method is to dip a small piece of cotton wool (about the size of a pea) into the ammonia and after squeezing out most of the moisture, insert this into the pill-box containing the insect. This has to be done with the aid of forceps, of course, and the cotton wool should be lightly held by the lid so that it does not drop to the bottom of the box and is kept away from the moth. The boxes so dealt with can then be placed in a fair-sized tin which should be closed to trap the escaping fumes. Insects so treated are ready to set half-an-hour later. A few green insects such as the Emeralds, Green Silverlines, Green Oak Tortrix, etc., must not be killed in this way or the colours will be ruined. These can be made unconscious with fumes of one of the killing fluids and then removed and stabbed under the wings by a pen-nib dipped in acetic acid. Insects so treated never revive on the setting-boards. After turning the dead moth out for setting, leave the box with lid off to get rid of the fumes—and clean the glass if dirty. Make a practice of always keeping the glass clean so that specimens on capture can be examined in the field. The ammonia should be kept in a glass-stoppered bottle and must be at full strength. If left uncorked it soon becomes useless. It is almost impossible to relax small moths satisfactorily and more should not be killed than one can deal with soon after.

Always use as stout a pin as possible: hair-like pins bend so easily and cause a lot of disappointment. Place the insect to be pinned on a piece of foam rubber or a folded ironed pocket handkerchief. I find the latter material excellent. It is best to use a lens when pinning, as a badly-pinned specimen cannot be set properly. The pin should enter the exact centre of the thorax and care must be used to see that it carries on straight and does not slant sideways through the body. Stain-

less steel pins are undoubtedly the best and are obtainable in many sizes.

Suitable setting-boards for micros I have not found easy to obtain, and I hope the dealers will cater more for the growing number of entomologists who now collect the micros. The grooves should be slightly larger than the body of the moth to be set, and it is surprising how many small setting-boards are sold with the grooves much too wide. A make-shift board for the Nepticulids can be made by cutting a small V-shaped groove in a larger board. This groove can be cut at right-angles to the main groove of the board, and does not impair its usefulness when the board is wanted for large species.

Beginners often lose interest in the micros because of the difficulty in naming their insects and I advise them to get their queries determined by someone who has had some experience. Naming is very difficult when one cannot recognise the genus to which a specimen belongs. If insects have to be sent through the post for determination, they usually travel safely if care is taken to see that the pin is driven firmly into the cork. This is most important as one loose insect can damage all the others. I have found corrugated paper excellent for the packing. Get a piece about two yards long if possible, a little wider than the length of box. Roll the box tightly in this so that there are four to six layers of the paper protecting the box, and pack the ends with a piece of crumpled newspaper before wrapping in an outer covering of brown paper. Many rare species of micros are undoubtedly unrecorded through no real effort having been made to get them named. I am always pleased myself to help to the best of my ability any reader who has queries about the micros.

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## Current Notes

Now that cabinet drawers containing the Noctuidae must be getting nearly full up thanks to the efficiency of the m.v. lamp, it is to be hoped that more and more collectors will devote their attentions to collecting and breeding the Rhopalocera for variations. And as probably most collectors have already obtained series of the British species, some of them will begin to think about spending their summer holidays amid the butterfly riches of the Continent. This will be all to the good; it is the gospel which Tutt preached unceasingly, as any reader will find if he peruses the back volumes of this magazine. To a native of this country with its meagre list of scarcely seventy species so wonderful can be the butterfly hunting in favoured places in Switzerland and France (not to mention countries farther from our shores), granted reasonably good weather, that he who has enjoyed it once will want to enjoy it every year.

Certain of the places which attracted English collectors in days gone by are of course—owing to bricks and mortar and other beneficent (?) works of civilization—no longer profitable; but in many a pleasant spot in Switzerland and southern France the profusion and diversity of species in a good year has to be seen to be believed. Some of the out of the way places where the hunting is still good are not favoured by tourists; and here high prices for board and lodging are not always the rule. We should like to have accounts, presently, from some of our

correspondents, of butterfly hunting on the other side of the Channel and North Sea, with hints about apparatus to be taken with one, routes, accommodation, likely expenses, and so on, for those who have not yet unfurled their nets overseas.

There is another reason why we hope that more of our readers will wish to spend their holidays abroad. The *Record* has a sub-title: "*and Journal of Variation . . .*" and we need more articles, and illustrations, on variation in the Rhopalocera. Of late years, apart from Dr. Cockayne's papers (which dealt almost entirely with the variation of moths), our pages have contained few records, and still fewer illustrations, of the aberrations of butterflies. Yet every year we hear, indirectly, of interesting varieties being caught in such and such a place. It has been hinted to us that in certain cases aberrations are genetical, therefore further examples of an aberration taken in a certain locality may be expected to appear in that locality in subsequent years, and some of these varieties "are worth a lot of money". For our part we believe that to the vast majority of lepidopterists this commercial consideration is of no moment whatever.

Castle Russell, whose wonderful collection of butterfly aberrations was the fruit of lifelong specialising in the Rhopalocera, was a shining example of the collector "of the right kind". He would invite friends—and not only friends but acquaintances—to accompany him to some favourite haunt where he had taken remarkable varieties, solely in the hope that the visitor also might catch similar rarities. His greatest pleasure in life was to help others and do as many kindnesses as possible, and this he continued to the last year of his life. What he did in the collecting of aberrations others can do. We believe that if the Castle Russell spirit were more widely diffused the collections of all of us would be the richer. Certainly we should none of us be the poorer.

So will those of you who read these lines and netted aberrations during the 1958 season send us notes about them? This applies to those who collect on the Continent as well as to those who collect here at home. Hitherto a drawback in illustrating aberrations has been the cost of the engraver's block, printing and paper. But this difficulty is not insuperable, and while it would not be profitable to illustrate common and not remarkable aberrations, requests to illustrate new and striking ones will always meet with sympathetic consideration by those of us who conduct the *Record* for you.

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By kind invitation of Professor G. C. Varley, the Eleventh Congress of British Entomologists, to be organized by the Society for British Entomology, will be held at Oxford on 3rd-6th July 1959. Like its predecessors, this congress will be open to the participation of any person interested in entomology. Accommodation will be at Jesus College, Oxford. The local organizer, Dr. M. W. R. de V. Graham, Hope Department of Entomology, University Museum, Oxford, will be pleased to answer enquiries, and to send a full programme, when ready, upon request.

It would greatly assist me if one of our readers with typewriting

facilities would offer to relieve me of the preparation of the Special Index as from January next year. I have dealt with this since the retirement of Mr. H. W. Andrews, but I now find that it cuts into time which I should be devoting to other editorial duties.—ED.

ERRATA.—Page 233, line 4, after *albicans* insert Mg. and in line 11 for Hall read Hal.

## Collecting Notes

On the 3rd September 1938 I recorded the following in my diary—"A fine sunny day following ground frost at dawn. Temperature 60° F. Went to Hatfield Forest. It was not possible to dig for pupae, the ground being hard as iron, no appreciable rain having fallen here for four months. Searching of aspen, birch and sallow produced only a few Prominents' eggshells. This must be one of the worst years entomologically known to the present generation." It was not until 25th September, that year, that I recorded "Rain last night and all today—the heaviest rain for many months."

Yet 1934 also was a rainless summer, in north-west Essex at all events. "No rain in May or June or July or August or September or October or November" my diary states. So, allowing for poetic licence, it clearly must have been a very dry hot year; yet there were Lepidoptera in abundance. I took all manner of pleasant things that year. *Strymon w-album* Kn. was in great profusion—"I could pick them off the bramble blossoms with my fingers" . . . "I saw more *E. hyperantus* today than I ever remember to have seen before" (15th July). "Vast numbers of *A. urticae* everywhere—this is a great year for nettles". By 20th July the *S. w-album* "have spread considerably since I first saw them . . . There have been letters in *The Times* lately regarding *S. w-album* in great frequency in Dorset and Wilts". The Essex Skipper, too, was unusually plentiful.

Sugaring, too, was good, that year. On 21st August "Sugared in the garden and glebe. A windy night following a day of strong wind from the S.W. and a bright moon. I thought I should not get a moth, but there were more moths at sugar than on any night since July. This shows that hot still nights, dark and overcast, with no moon and not a breath of wind are no good for sugaring in this locality (N.W. Essex). There *must* be a breeze—if a fresh one, the better—and a moon. This is contrary to most of the text books, but these last five weeks have proved it".

So far as the moon only was concerned this dictum was borne out again on 25th August. "In the evening I sugared at Crouch Hill Wood . . . A fine still night, with an autumn nip in the air—quite chilly at sundown—and a full moon, the Harvest moon, so strong that one could read a book by it. Bats were busy at nine o'clock (S.T.), and as there were moths flying everywhere I started to visit the sugar at 9.0. Moths on every tree. I counted fourteen on one, full in the glare of the moon". But this night was to provide a disappointment. "A wonderful night for moths. This being so, it was only to be expected that my electric lamp failed half-way round the first time! I finished the round by the aid of matches and was home by 9.45."

I found more Prominent larvae that September (1934) by searching

than I have ever found before or since. Every willow and sallow seemed to harbour *P. palpina*, every aspen *ziczac*. So dry summers can be both good and bad; but my diaries make no mention of a "sopping wet" summer being otherwise than bad entomologically for summer butterflies, August Noctuae, and September moths. Do those men who collect only by means of the m.v. lamp get as much fun out of their hobby as we older ones used to in days gone by? The beating-tray and the lamp may well fill cabinets and store-boxes more quickly; but to some of us they are soulless methods compared with searching—and sugaring.

## Practical Hints

Collecting is by no means over yet and those who spend sugarable evenings by the fireside when they ought to be busy with sugar-pot and net will have only themselves to thank if they fail to take interesting forms of *E. transversa*, *C. vaccinii* and *C. ligula*, not to mention the crowd of moths, headed by *L. semibrunnea*, that sups nightly on ivy blossom. Here are some random entries from my diaries, all for November.

"11th November. Sugared at Bollington Hall. A mild night, overcast, with a light wind from the N.W. following two days of almost continuous rain. Quite a number of moths at the sugar, two, three or four on every post and tree. By far the most common was *E. transversa*, of which we must have seen more than fifty. Took some nice variants, among them a black form. Also took two nice fresh *C. ligula*. A good many *C. vaccinii* were seen and we also took three *O. brumata* paired up with the apterous females, many males of this moth being on the wing. We also saw a few *A. circellaris*, mostly worn. . . . One of the *brumata* females has laid a number of eggs. They are light green, exactly the colour of green grapes, but oblong, like a blunt ichneumon cocoon." From these eggs a long series was bred, among them some very pretty forms.

On 18th November, that year, however, "a mild cloudy night with a nearly full moon (which rose early) and a light breeze from the N.E.", we had a disappointment well known to all brethren of the sugar-pot. By the time we arrived at our beat the sky had cleared and by 6 o'clock it was a brightly moonlit, starry, night. "The only specimens of the Order Lepidoptera at the sugar were a worn *E. transversa* and 4 *C. ligula* (three of them on one post)". But on the wing were large numbers of geometers, "mostly *C. brumata* but some larger. Not having a net we were unable to take any". Probably these larger moths were *E. aurantiaria*, *E. defoliaria*, *C. pennaria* and other late-appearing species. (Never go sugaring without a net!). My note ends with "A disappointing night and I doubt if I shall sugar again this year". I did not.

Next year I went on sugaring until 27th December, which was "a mild evening, following ten days of severe frost. Sugared the willows at Bentfield Mill. Three *C. ligula*, one of them very dark, almost melanic. Saw some larger moths, but the tree trunks were too wet to sugar with success", it having rained all day.



Ivy blossom should be searched nightly just now. 16th November. Two nights ago—on the 14th—C.S.C. took *L. semibrunnea* at sugar in his garden here. Tonight was a perfect night for sugaring, a soft drizzling rain, and very warm, but I reached home too late to sugar. When I visited the ivy blossom at 7 p.m. there was a considerable number of moths at it; but all (so far as I could see) *P. meticulosa*, *E. transversa* and *C. ligula*." However, the following year *L. semibrunnea* was comparatively frequent at the ivy and I took a short series of good specimens. *A. sphinx* and *P. populi* were taken at street lamps on many November nights and from a female of the latter species—which females do come to light occasionally—who laid a useful batch of eggs, a long series was bred. In November also I found a full grown larva of *A. psi* in the Memorial Chapel of King's College Chapel at Cambridge. Probably it had been taken there on foliage for altar decoration. I said my prayers, and boxed it. It pupated on 19th November. Incidentally, that year I had an autumn emergence of *G. augur* in my cages, the first one appearing on 14th November and the last on 3rd December.

## Notes and Observations

HIPPOTION CELERIO L. IN CUMBERLAND.—A specimen of *H. celerio* L. flew into a paper mill at Little Salkeld, Cumberland, on the night of 30th September-1st October.—W. F. DAVIDSON, 9 Castlegate, Pentith.

HIPPOTION CELERIO LINN. IN YORKSHIRE.—It may interest you to know that I have had brought to me a good specimen of the Silver-striped Hawkmoth (*Hippotion celerio* L.). It was caught at Wombwell on Thursday, 2nd October 1958, by Mr. Jack West of Rose Grove, Wombwell, who took the moth fluttering in the window of his living-room.—JOSHUA HUDSON, 69 Milton Street, Wombwell, near Barnsley. 11.x.58.

CELERIO GALII ROTT. IN NORFOLK.—In *Ent. Rec.*, 69: 19, I reported the finding of two larvae of *Celerio galii* Rott. in a wood near Norwich. Four larvae were found there in 1957 and the moths reared. This year 44 were observed in the same place, so it would appear that this interesting insect has been able to establish itself in its chosen locality.—R. G. TODD, West Runton, Norfolk.

RHODOMETRA SACRARIA LINN. IN BUCKINGHAMSHIRE.—A specimen of *Rhodometra sacraria* L. came to m.v. light here in my garden on the night of 12th/13th September. It is a male and rather worn.—Lt. Col. W. A. C. CARTER, R.A., Briarfields, Sandels Way, Beaconsfield. 14.ix.58.

RHODOMETRA SACRARIA LINN. IN HAMPSHIRE.—You may be interested to know that a fresh specimen of *Rhodometra sacraria* Linn. was taken by me in a mercury vapour trap here on 5th October 1958.—L. W. SIGGS, Sungate, Football Green, Minstead, Hants.

AN INTERESTING VARIETY OF THE SMALL WHITE, *PIERIS RAPAE* LINN.—I had the pleasure of taking a very fine variety of *Pieris rapae* Linn. on the slopes of Mount Caburn, near Lewes, Sussex, on 7th August of this year. I netted the butterfly in the belief that it was *Pontia daplidice* L. as it appeared very dark on the wing. It was a perfect male,

and I would describe it as follows:—*Upperside*: normal apart from an area of black scaling at the wing bases and a faint black scaling on a vein in each hindwing. *Underside*: Forewings: tips and margins yellow, remainder of wings suffused with black scales, densely for about one-third of the lower portion. All veins picked out in yellow and a white crescent mark centrally on the bottom margin. Hindwings: margins yellow, remainder suffused with black scaling and veins picked out in yellow. The whole effect is very beautiful, the yellow markings making a strong contrast with the superimposed black. The insect was exhibited at the Exhibition of the Amateur Entomologists' Society on 20th September last.—P. W. CRIBB, 255 Hounslow Road, Hanworth, Mdx.

*HELIOTHIS ARMIGERA* HÜBN. IN THE LONDON DISTRICT.—On 10th August 1958, I took a specimen of *Heliothis armigera* Hb. in my garden at Kingsbury. The determination was confirmed by Mr. B. Goater. According to Dr. de Worms's list in *The London Naturalist* (Reprint No. 102, p. 64) the most recent record of an imago in the London area was one taken at Tooting Bec on 10th October 1947.—ALAN A. MYERS, 34 Crundale Avenue, London, N.W.9.

*GRACILLARIA AZALEELLA* BRANTS. IN SURREY.—On 20th May I bred a specimen of this pretty moth. It emerged from a cocoon found on the underside of an azalea leaf picked in Mr. R. M. Mere's garden at Chiddingfold, Surrey, on 4th May, on the occasion of a field meeting of the South London Entomological and Natural History Society. In Meyrick's *Revised Handbook*, it states: "Devon (Torquay), established in greenhouses, plentiful, and injurious pest". At Bournemouth, Hampshire, it is well established in some gardens, and Mr. S. C. S. Brown of that town used to find it regularly on the azaleas in his garden. Some years ago, I bred a nice series from larvae he kindly sent me. It would be interesting to hear if readers have heard of other records.—S. WAKELY, 26 Finsen Road, London, S.E.5.

[As Mr. Wakely states, outdoor records for this species are indeed scarce, but it may be found pretty regularly on the *Rhododendron indica* varieties imported from the Continent (I think Belgium is the main supplier) for the Christmas season. If one holds the pot with the bottom facing one, it is easy to see infested leaves, the dark green of the upper side standing out clearly against the silvery green of the leaf undersides. The conventional mine shows the tip of the leaf folded down for about a quarter of an inch, and as feeding proceeds, the lighter patches appear in the dark green tip. This is, however, not the only way leaves are mined, and not infrequently sides of leaves are turned under, so that any dark green showing from below should be taken as a 'possible'. After Christmas, when the florists' stocks are beginning to look a little tired, I have found the florists not unwilling to allow me to examine the plants as mentioned, and to take off infested leaves. These plants are regarded as 'expendable', and are usually thrown away when no longer saleable as flowering pot plants.—Ed.]

NOTES ON IMMIGRANT LEPIDOPTERA TO NORTH-WEST ENGLAND, 1958.—While it is not too late in the year to hope that further interesting captures of immigrant lepidoptera may be made certain recent captures

warrant early record on account of their intrinsic interest. I did little field work in the early part of the year on account of other commitments and also because the weather for the most part was very poor for outdoor activities. I first saw *Vanessa cardui* L. on the edge of Foulshaw Moss in S. Westmorland on 17th July and on the same day also saw what I believe to have been a *Colias croceus* Fourc. The latter dived into some vegetation on the edge of the moss and when I followed it up I could find no trace of it. No other species seems likely to have been confused with this one. However not having had a really close look I should consider the record slightly doubtful.

In the latter part of July and early August I was away in Devon and missed the great invasion of *Plutella maculipennis* Curt. However this species turned up in my m.v. trap almost nightly from 23rd August until well into September. On 23rd August *Plusia gamma* L. put in appearance at the trap in strength—there were over 50 specimens in my trap that morning and they were accompanied by about 20 *Nomophila noctuella* Schiff. The whole appearance gave the impression that an immigration had just occurred. The following night the number of *gamma* in the trap dropped to under ten!

On 1st September a specimen of *Pyrausta martialis* Guen. (*ferrugalis* Hübn.) was taken in my trap. This is the only specimen of this moth taken to date this year.

On Sunday, 7th September, I listened with much interest to the radio talk on Insect Migration in the programme "The Naturalist". Perhaps therefore it was a happy omen that when examining the moths in my trap at about 11.30 p.m. B.S.T. that night I found a good specimen of *Heliothis armigera* Hb. This was a female but was so thin and 'spent'-looking that I took it for a male and killed it right away! This is only the second record of this species in this area that I know of. The late Dr. R. C. Lowther took a specimen at Grange over Sands (which is in Lancashire) in 1931.

On 11th September I was more than pleased to obtain a fine female *Herse convolvuli* L. in my trap. This I kept for a night in the hope of getting eggs but failed. This species has been recorded a number of times before in this district. But it is definitely not a common migrant in this area.

On 12th September I paid a visit to some sandhills in the Furness area of N. Lancashire. Here I noted *Vanessa cardui* L., *Plusia gamma* (in plenty), *Agrotis ipsilon* and *Nomophila noctuella* of the migrant species.

Owing to very poor weather conditions the trap has not been in operation for the last four or five nights but until the 16th there was a number of *Plusia gamma* L. each night. It certainly seems to have been a very good year for that species.

In the last week *Vanessa atalanta* L. has been seen at a number of points in the Kendal district and seems to be quite common.—Dr. NEVILLE L. BIRKETT, 3 Thorny Hills, Kendal. 21.ix.58.

THE UNNATURAL HISTORY OF THE SIRICIDAE (HYM.).—Valuable papers on entomology are to be found in most unexpected places. Two are recorded here for the benefit of students of the Hymenoptera.

(1) *Hansard*, 19th November 1954, p. 722, Debate on the Mines and

Quarries Bill. "I wonder what steps the Minister is going to take about the Wood Hornet. It is a little insect, but it is a very terrible insect. Nobody can see it, even when above ground, because it bores into timber. It comes from abroad, mostly in the pit-props from Finland and Northern Russia. Nobody can tell that it is in the timber. How is the Right Hon. Gentleman going to deal with it when it reveals itself underground? The wood hornet is embedded in the timber; it is latent there; it comes out when it gets into the pit atmosphere."

"Some may say that is only a trivial thing, but is it? I have known wood hornets in the pits make severe attacks on miners who did not know anything about them until the damage was done. I recall a case in which a wood hornet rather above the usual size descended on the back of a miner who thought it was only a little bit of dirt, such as we get in the pit. Eventually that hornet, accustomed to boring into timber, bored into the man's back and set up septic poisoning, and that man was a cripple."

"The trouble should be put right at the beginning, by the prevention of wood-hornets descending the pits and infesting them."

(2) *Birmingham Mail*, circa 1954. 3-INCH INSECT WITH A STING. UNWELCOME VISITOR IN SOLIHULL SHOP.—"An unwelcome visitor from the Canary Islands—a winged insect, three inches long, with a vicious-looking sting—caused a mild disturbance on its arrival in a Solihull fruiterer's store.

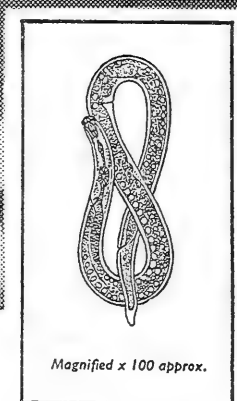
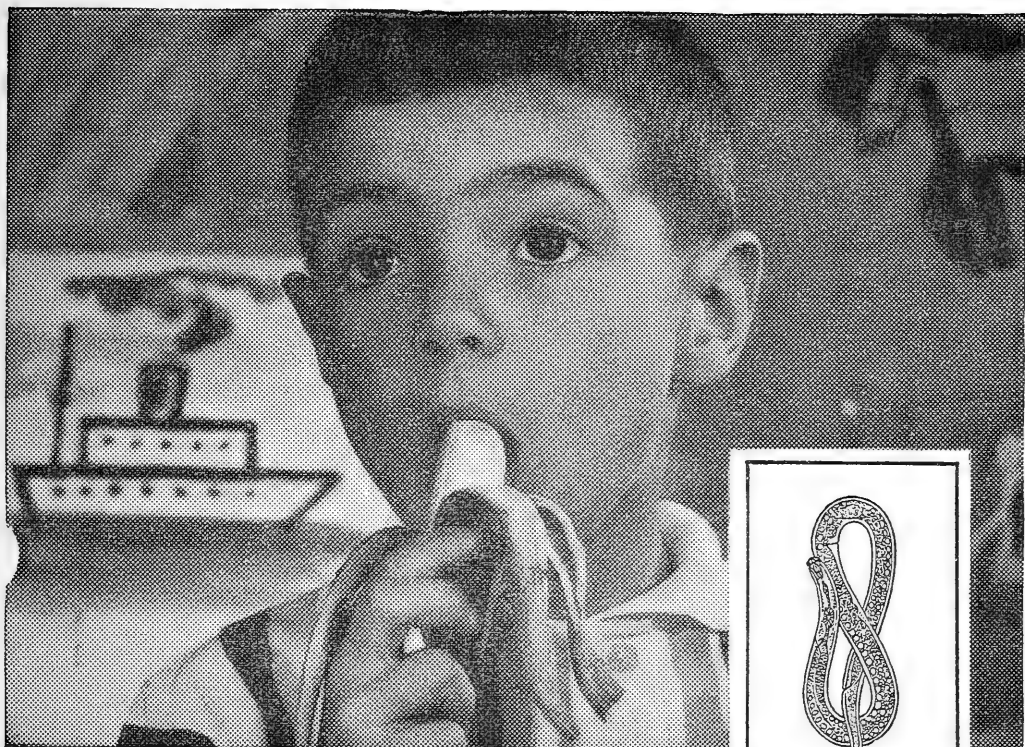
When a crate of bananas was opened by Mr George Barnett, an assistant at the Cavendish Fruit Store, in the High Street, the insect flew out into a woman customer's hair. "She was startled and screamed", Mr Barnett said today. "The insect then flew into the shop window, and I began chasing it with a pair of scissors." The insect, brown in colour, was eventually captured, and placed in a box.

"I took it to the local Public Health Department, but officials there were unable to say what it is. We intend to take it to the Birmingham University Science Laboratory to see if it can be identified," Mr Barnett added.

(The ♀ *Urocerus gigas* (L.) concerned is now in my possession.)—F. H. LATHAM, The Elms, Mappleborough Green, Redditch.

CALOPHASIA LUNULA HUFN.—Since the short article on the life-history of the above moth appeared in the *Ent. Record* last month it has been brought to my notice that a very good and detailed paper had already appeared on the same subject in the *Ent. Gazette*, Vol. V: 1954, by Mr. E. W. Classey and further details in Vol. VI: 1955, by Mr. G. Haggett. These articles are beautifully illustrated with the egg, larva, pupa and moth, so I must withdraw my statement that the life-history had not hitherto been figured or described. I was, of course, unaware of the above, and at the same time I should like to bring to the notice of others the above papers and congratulate the authors for their fine contribution to our knowledge.—Rev. D. P. MURRAY, The Lodge, Stoke Golding, Nuneaton. 27.ix.58.





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## EXCHANGES AND WANTS

*Cambridgeshire Lepidoptera*.—Records wanted for new County list in preparation. Butterflies, Pyralids and all Chippenham fen records particularly wanted. Full acknowledgment will be given.—*Brian O. C. Gardiner, 43 Woodlark Road, Cambridge.*

*Wanted*.—An examination of the Coleoptera section of the General Science Museum at Merchant's Taylors School shows that there are a great many gaps in it. Can any Coleopterist readers of the *Record* assist by sending some of their duplicates?—*G. Lucas, 17 Munden Grove, North Watford, Hertfordshire.*

*For Sale*.—Aberrations of *A. caja*.—*R. G. Todd, West Runton, Cromer, Norfolk.*

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d'ASSIS-FONSECA, F.R.E.S.

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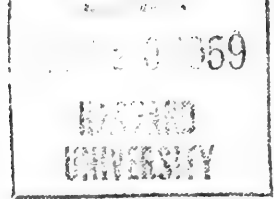
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## Editorial

When Tutt founded this magazine in 1890 he ignored the precedents set up by *The Entomologist* and *The Entomologist's Monthly Magazine* of having a panel of Assistant Editors. Newman had played a lone hand with *Entomologist*; but when John Carrington acquired that magazine on Newman's death the first thing he did was to form an advisory panel of five. For eight years Tutt managed alone; then Donisthorpe (Hymenoptera and Coleoptera) joined him, next year Malcolm Burr (Orthoptera). Within a few years Tutt's panel had increased to twelve.

Following Tutt's example, for the last eight years the two successive Editors of the *Record* have managed without a panel. And, also following Tutt's experience, it has been found that the burden thrown upon the shoulders of an unassisted editor has become altogether too great. It is an honorary post and it absorbs the whole of such leisure time as a business man can find.

The Board of Governors of the *Record* has therefore decided to enlist the aid of certain well-known entomologists who will help and advise the Editor in the conduct of this magazine, and their names will appear on the cover of the *Record* in January 1959. They are:—

*Mr. A. A. Allen*, one of the best coleopterists in this country, whose notes and papers are already well known to our readers.

*Dr. Neville L. Birkett*, for many years a contributor to the *Record*. A recognized authority on the Lepidoptera of the North of England, who is also interested in the Chironomidae.

*Mr. J. M. Chalmers-Hunt*, another lepidopterist whose name is well known to our readers for his excellent and original field work on the Lepidoptera of Kent.

*Major A. E. Collier*, a geneticist whose outstanding work on the genetics of *Lysandra coridon* Poda, *Melanargia galathea* L. and other Rhopalocera has aroused great interest

*Mr. C. A. Collingwood* is a hymenopterist whose papers and notes on ants will fill the gap left by the death of Horace Donisthorpe. Like Donisthorpe Mr. Collingwood is also interested in the Coleoptera.

*Commander G. W. Harper, R.N. (Retd.)* is another lepidopterist familiar to our readers by his excellent work on the Lepidoptera of Inverness-shire.

*Mr. L. Parmenter*, the well-known dipterist, has been a pillar of strength to the *Record* in the past, not only contributing papers on the Diptera himself but collecting valuable papers and notes from his dipterist friends for publication in this magazine.

*Mr. H. Symes* is also well known to readers as one of our foremost field workers in the Order Lepidoptera, as indeed his many papers and notes in the *Record* of recent years have shown.

*Mr. S. Wakely*, so well known to our readers for his activities as a field worker among the Microlepidoptera, has contributed many instructive notes and papers on this interesting group of the Lepidoptera, which is regaining something of the popularity it enjoyed during the latter part of the nineteenth century.

With regard to the future conduct of the magazine, suffice it to say

that Tutt's policy, as restated in the Editorial printed in the *Record* of November 1957 (*Ent. Rec.*, 69: 229) will be adhered to.

We have recently suffered a loss. Our Treasurer, Mr. A. C. R. Redgrave, has been obliged by pressure of work, with increased responsibility following upon promotion in his profession, to resign his treasurership. He came to the aid of the *Record* at a time when its existence was still far from assured, and the present satisfactory state of the magazine is largely due to his prudent handling of our finances. Happily Mr. Clifford Craufurd, so well known as a long-standing member of the 'South London', has agreed to step into Mr. Redgrave's shoes, and we here record our gratitude to them both. Like Mr. Redgrave, Mr. Craufurd is a banker.

Owing to this change in the treasurership a new Banker's Order will be necessary and one is enclosed with this issue. Please fill this in and return it promptly to Mr. Craufurd, whose address is given at the foot of the front cover.

Further changes concerning the Annual Subscription are set out in the leaflet which accompanies this issue. It is a pity that these changes are necessary; but we are in a fiduciary position as regards our Subscribers and must needs therefore look after their interests. It is *you* who pay for the cost of producing this magazine, not we who conduct it for you. These changes will not entail any hardship upon those who pay by banker's Order or by cheque promptly at the beginning of each year.

## The Genetics of *Lysandra coridon* Poda ab. *syngrapha* Kef.

By Major A. E. COLLIER

The results obtained in 1956 (*Ent. Rec.*, 68: 281) established the fact that *Lysandra coridon* Poda ab. *syngrapha* Kef. is a recessive. Although the brood was a mixed one, being the result of two similar matings between the progeny of a *syngrapha* ♀, the approximate equality in the numbers of normal and blue females obtained pointed strongly to the possibility of recessive sex linkage. With this in view, the original programme was repeated.

Two matings were obtained between *syngrapha* females of the 1956 brood and their brothers or cousins, and another mating between a *syngrapha* and an unrelated male.

The last brood was the only one to come through successfully, and from it there emerged in 1957, 26 ♂♂ and 18 ♀♀, all of normal appearance. Two successful matings, A and B, were obtained from this brood, but another of the heterozygous males was mated with a virgin female bred from stock taken in a locality where *syngrapha* has never been recorded. From a simple recessive such a mating would not be expected to produce any result in the F.1 brood, but if the condition were sex-linked then equal numbers of normal and blue females could be expected.

From all three broods about 10% of the eggs hatched in the early autumn, and one precocious larva actually pupated on 25.xi.1957, giving rise to a normal female on 31.xii.1957. The remaining larvae

gradually disappeared until no survivors could be found on 25.iii.1958.

All my *comosa* had been severely infested with green fly and red spider, and I found it quite impossible entirely to eradicate these pests. The plants on which the young larvae emerged in 1958 were consequently far from healthy, and were very liable to mildew.

Brood A, of about 100 eggs, produced 41 larvae by 13.iii.1958, the remaining larvae either dying in the egg, or failing to emerge after eating a hole in the shell. The larvae lacked vitality and had all died by the end of April.

Brood B was more successful, and produced 48 imagines between 19th July and 8th August. Of these, 22 were typical males, 10 typical and 16 *syngrapha* females. These results again suggested strongly the possibility of recessive sex linkage. The final proof of this state of affairs was reached on 3rd August 1958, when the first *syngrapha* ♀ emerged from one of the 18 pupae of brood C.

In all, this brood produced 12 normal males, 3 normal and 3 *syngrapha* females, conclusively proving that ab. *syngrapha* is a sex linked recessive.

The peculiarity of this condition is that a mating between a heterozygous ♂ and any normal ♀ will result in 50% of the daughters being *syngrapha*. A lucky survival of males, sons of a *syngrapha*, could very quickly lead to great numbers of the blue females in a colony.

This could explain the extraordinary prevalence of ab. *syngrapha* at Princes Risborough in the years 1916 and 1917; a condition quickly corrected by enthusiastic collecting.

The homozygous male, the allotype, can only be obtained by mating a *syngrapha* female with a heterozygous male. Such a union has been effected and a clutch of fertile eggs, a few of which have already hatched, may with good fortune produce the unknown male in 1959. Whether this allotype will be distinguishable from a normal *coridon* male remains to be seen.

## The Life History of *Procris globulariae* Hb.

By H. SYMES

On 8th June 1957 I received a letter from Captain R. A. Jackson asking me if I would like to try breeding some *Procris globulariae* Hb. from the egg and offering to send me some. He added that he believed *globulariae* had never been bred from the egg in England. I naturally accepted his kind offer with alacrity, and about twenty eggs, laid on 2nd June by a Wiltshire female, arrived on 13th.

I had read Buckler's account of his unsuccessful attempt with some eggs sent him from Germany, and I must make it clear at the outset that our English species known as *globulariae* is not the species described by Buckler. In fact, there is some doubt as to what the name of our species should be. Cockayne, after considering more than one alternative, eventually decided that it should be known as *Procris viridis* Tutt. For this information I am indebted to Captain Jackson. The foreign larvae sent to Buckler after hibernation and figured on Plate XVIII in Vol. II of his 'Larvae' are totally different in colour from the larvae of our species, which bear more resemblance to those

of *P. geryon* Hb. and are entirely devoid of any green colour. But the habits of our larvae are identical with those described so faithfully by Buckler, and when full-grown they too burrow just below the surface of the earth to form their cocoons, differing in this from *P. geryon*, whose larvae make their cocoons low down on the stems of their food plant, *Helianthemum chamaecistus* Mill.

Most of the eggs, laid on a leaf of knapweed (both species, *Centaurea nigra* L. and *C. scabiosa* L., are equally acceptable as food) hatched on 20th June. The first instar lasted about a month. At this stage the larvae are creamy white with a black head. They reminded me of very small specimens of the weevil grubs one finds in a hazel or cob nut, and I thought they were rather repulsive-looking little beasts. After the first moult, the ground colour was light fawn, and there was an interrupted black line down the middle of the back and another along each side. The whole body was thickly covered with short, dark grey hairs, and the general appearance of the larva was mouse-coloured. This colour persisted during the third and fourth instars. The second and third instars each lasted nearly a month, and the third moult took place during the second week of September. Early in October the larvae, now in their fourth instar, ceased feeding, and on 15th October they were put into winter quarters.

Before hibernation the larvae sometimes fed on the outer cuticle of a leaf, but more often they burrowed into it and fed inside between the two surfaces. They produced a sort of blister and could be seen inside it. Frass was extruded through the entrance to the blister. They were always extraordinarily sluggish, and often would not leave the surface of a leaf that was going mouldy, but they seemed to suffer no harm from this. When resting, and they seemed to spend most of their time doing this, they assumed a hunched-up attitude, rather like that of a cowering mouse.

Fourteen larvae went into hibernation, and I divided them into two batches. Six were placed in a muslin sleeve supported by a twig with its end plunged into a jar half-filled with damp sand and kept just inside the open window of a garden shed which the sun never reached in the winter: eight were sleeved on a stem of potted-up knapweed, and the pot was kept in the open, protected from direct heavy rain by a contraption like a miniature lych-gate. In this way the larvae passed the winter with only two deaths.

On 16th February 1958, a mild day at the end of a mild week, I examined the sleeve in the shed and found that one larva had died and the other five were loose in the sleeve, rolled up almost like diminutive hedgehogs. There followed two cold nights when the ground temperature fell to 20° F., and a week later there was a fall of snow with a cold N.E. wind and a sequence of four night frosts.

On 3rd March, when milder weather had returned, I removed the five larvae from the sleeve in the shed, put them in a glass-topped metal box in an unheated room, and gave them two small knapweed leaves. One larva began to feed immediately and the others were not long in following suit. I shall refer to these larvae as group A. Next day I examined the flowerpot where the other eight larvae were sleeved (group B). I noticed blisters on the very small root leaves, none of them as much as an inch long, and a larva on the surface of the soil.



I opened the sleeve and found it contained one dead larva: two small holes in the muslin showed where all the others had escaped by gnawing their way through. I found three of them under the root leaves, where they had begun to feed, but the other three had vanished.

I now had five *A* and four *B* larvae, and up to this point I was very well satisfied with the way things were going, especially when I heard from Captain Jackson that only two of his larvae had started feeding after hibernation. However, from this point things began to go wrong. One *B* larva moulted on 30th March and another on 3rd April, but two died before 2nd April. Four *A* larvae moulted on 6th, 9th, 10th and 11th April, and one died on 9th April. There were now six surviving larvae all in their fifth instar: they were of the same colour as before moulting. One *A* larva moulted again on 28th April: it was the only larva that moulted twice after hibernation, and reached its sixth instar. One *B* larva died on 18th April, the other, after fasting and remaining all-but motionless for a week—I thought it was preparing to moult—became almost active on 29th April and went down into the earth on the 30th. Three *A* larvae went down on 3rd May, and the last (the one in its sixth instar) went down on 14th May. None of these larvae had attained the size I had expected, which was at least that of a full-grown larva of *P. geryon*, a species that I had reared some years ago.

On 8th June I found five very small, tough cocoons just below the surface of the earth, and a week later I opened the cocoons, and the pupae I found did not look too good. However, on 19th June an imago emerged, a male, but undersized. I expected one of the other pupae, which looked healthier than that from which the moth had emerged, to yield a second imago, but such was not the case and it dried up. After succeeding so well up to a point I was sadly disappointed with the final result. Captain Jackson, who got only one larva through to the pupal stage, bred a fine female which he showed at the South London exhibition. Anyhow, he said, we both went one better than Buckler.

The general impression I had was that my larvae did not eat enough after hibernation. Whether they ought all to have reached their sixth instar I do not know, but I suspect that they should. I have heard that the larvae in the wild feed up very rapidly in the spring, but this could not have been said of mine: they fed up steadily but slowly. Even the arrival of fresh food did not seem to whet their appetite. When they stopped feeding early in May I expected that it was in preparation for a moult, and not for going down into the ground. It is possible that they need exposure to the sunshine in their later stages.

[For Cockayne's paper on *Procris globulariae* Hb. see *Entomologist*, 71 (1938), pp. 45, 46. According to R. Agenjo ("Los Procris de Espana" in *Rev. Espan. Ent.*, 12 (1937): 283-322), *globulariae* Hb. and *notata* Zeller are the same species. Jordan in *Seitz* calls the species *cognata* H.-S. The British species has a brown larva, the German one (figured and described by Buckler and copied by Barrett) a green one. For a further discussion on the nomenclature see *Stett. Ent. Zeitung*, 1 (1938), p. 149; *Novitates Zoologicae*, vol. xli, No. 3 (August) 1939: 212-216.—P.B.M.A.]

## Isle of Canna Report for 1958

By Dr. J. L. CAMPBELL

1958 was marked by snowy winter, a cold late spring and a remarkably fine warm dry summer which lasted, with a few brief breaks, from 31st May to 22nd September. In fact, the Hebrides were the only part of the country to enjoy a summer of this kind, which actually resulted in a water shortage.

Nevertheless, butterflies of all kinds were remarkably scarce all through the summer. *Pieris brassicae* L. was hardly seen and *Nymphalis* *io* not encountered at all. *Vanessa atalanta* L. was seen twice in June, three times in September, and once in October. Two specimens together in my garden on 7th October represented the maximum number. *Vanessa cardui* L., scarce or absent for several years now, was seen only twice, on 28th and 29th August. Only *Plusia gamma* L. and *Nomophila noctuella* Schiff. of the migrants were noticed commonly. There were nine specimens of *noctuella* in the m.v. trap on the 16th August, one on the 18th, three on the 19th and three on the 17th September.

252 moths of 43 species in the trap on the morning of 16th August, plus an *Aglais urticae* L. on a nearby bush, represented the greatest number of species; on 14th September there were 358 moths of 24 species—a good catch for mid-September. 11 *gamma* occurred that night. There were some diamond back moths in the trap around the end of August, but as there were no cruciferous crops here, they did not occur in any extraordinary number.

New species added to the Canna collection in 1958 were:—*Biston betularia* L. caught sitting on a rock face on Sunday the 7th June, brought down by a well-aimed cup of petrol from my outboard motor as I had no net with me; *Bombycia viminalis* Fab. in the m.v. trap on 1st September (when there were 183 moths of 28 species, including two *Tholera cespitis* Schiff. which is not a common moth here); and *Atethmia xerampelina* Esp., also in the trap, on 8th September, when there were 165 moths of 23 species, including 37 *Omphaloscelis lunosa* Haw. and 11 *gamma*. After 17th September I was away at agricultural sales most of the time, but towards the end of October the trap produced *Peridroma saucia* Hb. and *Agrotis ipsilon* Hufn. One specimen of *Hadena caesia* Schf. was taken in the trap this year, on 9th August.

Owing to pressure of other work and interests the trap was not worked consistently during the summer, and in any case moths were scarce until August. But the very fine calm weather, besides producing such marine phenomena as a shoal of herring some of which struck at a mackerel fly (a most unusual occurrence) and a large killer whale which haunted our shores for several weeks in search of seals (the stock of which he reduced by two-thirds) and which provided some unpleasantly close encounters with small boats, gave opportunity for trips by motor-boat to several interesting places. On 16th July Wreck Bay on Rum was visited and *Zygaena purpuralis* Bruen. found swarming there along with many *Z. filipendulae* L. On the 31st we visited Papadil where there is a strong colony of *Argynnis aglaia* L., more numerous than any other colony I have seen in the Hebrides. On 23rd August we made a trip to the island and lighthouse of Heiskeir, ten

miles away. The sea swarmed with basking sharks, and several bottle-nosed whales were seen. I had not been on Heiskeir for fourteen years, since when goats had been introduced by the lighthouse keepers, with a corresponding restriction of herbage. No lepidoptera whatever were seen on this visit, nor were any wild bees, which certainly existed there in 1944. The head lightkeeper informed me that moths had been very scarce at the light this summer and the only butterfly he had noticed was the Common Blue.

It will take some time for our insect population to recover from the bad summer of 1957, and the very cold and late spring of 1958. Canna itself is undergoing a transformation since the near extinction of the rabbit population by myxomatosis in 1955. This has produced results which are entirely beneficial: for one thing, it has made it possible to double the acreage under trees, a thing that could not be done in the days of the rabbit-plague. Japanese larches, Austrian pines, oaks, willows, alders, limes, birches and rhododendrons have been planted freely and are doing well. Another result is the great spread of wild white clover; and a third is the multiplication of the finer grasses and wild flowers through relief from the constant nibbling of the rabbits, which concentrated on the best ground with the result that coarse herbage was increasing and encroaching at the expense of the finer grass, white clover, and wild flowers. This process has now been reversed. Moreover, being deprived of rabbits, the predators have turned to rats and mice with most satisfactory results, so that agriculture, forestry and entomology have here all benefited from myxomatosis.

*Isle of Canna.*

## A Castle Russell Memory

By Colonel V. R. BURKHARDT

In Colonel S. H. Kershaw's *Memories of Castle Russell* (*Ent. Rec.*, 70: 37) he writes: that "The risk of an accident befalling him on these occasions (*i.e.* when collecting in large woodlands) was minimised to some extent by persuading him to carry a whistle; but of course he was never known to use it". He did, however, use it once when I was collecting with him, and it was this whistle which lost him his most outstanding *paphia* 'var.'!

In July 1941 the species were swarming in Oakley plantation, but Russell and Marcon only worked the bit just north of the road which separates it from Burley. I went exploring further north and crossed the main road through the plantation. The first thing I netted was a very worn completely melanic female. Going up the same ride I saw a *confluens* at a junction, but lost it when it dived into the wood. Then I saw the famous "little var." a male, obsolete in the forewings with completely black hind. It flew round like an oak eggar, but settled on fern a few feet away, so that I got a good look at it. Even a step towards it sent it in the air again. Coming back by another ride I found a second but fresh melanic female, but it dodged out under the net and disappeared.

I brought C.R. up to the place before we went home, and we were after them next morning. He got the *confluens* early, but did not locate the second female till late in the evening, when he found it on

low down bramble. It was the only time I have seen him so excited that he brought his net down with a crash. He spent the whole of the next day after the "little var." and saw it continuously. I was working in another part of the wood when he blew his whistle. When I got into the ride with him I saw three mating *paphia* coming towards me knee high. I always caught these processions as you could swipe them all up in the net at once, but just as they got abreast of me he blew that infernal whistle again, and I let them go to hurry to him. He told me the 'var.' had settled on a tree trunk within reach but he slipped on a fallen log and disturbed it. Then it came back, but out of reach, so he whistled for me to double the chances of swooping it when it moved. Just as he saw me coming a mating pair flew close by, and the "little var." followed as the third. It was the procession he had stopped me netting, and that was the last time we saw it!

When I showed him the ride the evening before I marked the entrance with two slats of wood, as three paths converged there like a broad arrow. We left the car just outside in the shade, and he stayed behind when I went off, fiddling with arranging something. He then ambled on, completely ignoring my directions, and I didn't connect with him again for an hour.

I always marvelled how he found his way back to the car. Once, at Dunsfold, we parked in the usual place by the White Cottage, and he dived into the woods, finally emerging on the road on the far side. He didn't dare to try to find his way back through the rides, but walked all round by the road, three sides of a square. He was then over eighty.

C.R. used to like to get somebody to drive the car, but if you went to some spot familiar to him but fresh to you, he was quite plaintive if you passed the habitual parking place, though he never thought of giving you a warning as you approached it. I told him once that I was not a thought-reader.

He had a good story about a man collecting *Colias hyale*, but whether it was first-hand or not I don't know. The fellow with the net was ramping all over a field of lucerne, and his friend was watching his progress from the path. When an enraged farmer came up, breathing fire, the friend told him that the collector was a dangerous escaped lunatic and that he was the keeper. He said that if the farmer did not excite him with his presence he would eventually entice him out and take him away. Which he did, after "the lunatic" had amassed a satisfactory bag!

## A September Holiday

By J. O. T. HOWARD

The south-west corner of Pembrokeshire consists of a peninsula bounded on the north by the waters of Milford Haven and with the town of Tenby at its eastern end. It is not an extensive area, measuring only some 12 miles in length and 6 in width, and parts of this are inaccessible, the Army being settled in near Castlemartin and one of the big oil companies having started development works at Angle. But along the coast are a number of delightful and unfrequented bays with good beaches running back to sand-dunes, and in the middle of the

peninsula, three miles from Pembroke, is the Orielton nature reserve, owned for the last four years by Mr. R. M. Lockley.

My wife and I spent the first fortnight in September this year at Orielton. We did better than most with the weather; days were frequently sunny, and rain for the most part confined to the nights. There must have been a considerable migration of insects in the early days of the month, to judge both from our own experience and subsequent reports. The first signs of this were on 4th September, which we spent on Skomer Island. The sun was hot, and there was a brisk S.E. wind which had been blowing for several days. (It backed to northerly in the afternoon, causing the boat which fetched us off to go round to the south of the island, where we had to make a most hazardous descent to it; but that is another story). Heather patches on the island were alive with swarms of *Plusia gamma* L. and there were numbers of *Nomophila noctuella* Schiff. and a sprinkling of *Vanessa cardui* L. and *V. atalanta* L. That night and the next there were large numbers of *P. gamma* in my trap, which Mr. Lockley kindly allowed me to plug in. The following night, 6th September, which was also our wedding anniversary, produced only two *P. gamma* in the trap, but they were in company with a *Celerio livornica* Esp., a little worn, but quite intact. This moth was recognized and named instantly by Roger Haworth, a boy who was also staying at Orielton. He told me that a *C. livornica* had been taken during the summer at his school, Dartington Hall, near Totnes, and I mention it here as I think it is unlikely to be recorded elsewhere.

Nothing more of interest came to the trap, apart from a specimen of *Peridroma saucia* Hb. (or must I call it *porphyrea* Schiff.?) of the rather handsome form with a black shade along the costa (Tutt's var. *nigrocosta*). I did a little sugaring on the coast at Freshwater West, and turned up a form of *Aporophylla australis* Bdv. which is quite distinct from the series I have from Sandwich; the black markings are very prominent, and one specimen is almost melanic. By day on the beach here we found a few *Agrotis ripae* Hb. larvae feeding on orache, but they were not plentiful. At Broadhaven, however, further east, they were in considerable numbers. Here they were feeding on sea sandwort, and some of the patches of it were completely stripped. My wife found the first larva, crawling over the sand in hot sunshine looking for fresh pastures. We subsequently found several in the open, and even managed to track a few by their trails in the sand. Brought home to Dorking, they took happily to sliced carrot, but I regret to report that they also took to feeding on each other. How many are left in the flowerpots I do not know.

The third week of our holiday was spent at home. On 15th September I went over to Westhumble to collect a brood of *bifida* which had been sleeved on a small aspen in Mr. Geoffrey Cole's garden (and had eaten most of it). There were about two dozen cocoons, bred from a female which had come to my trap back in June, curiously enough the first of this species I had ever taken. Mr. Cole told me that *Calophasia lunula* Hufn. larvae had been taken the previous day in some numbers at Dungeness. I had not hitherto been very successful with this moth, so on the 17th we went over there for the day. As usual, it was my wife who found the first larva, in fact she found six before I had found

one, but then I got my eye in and we did very well, leaving plenty of half-grown larvae behind.

I had the trap in my garden all this third week in the month, but nothing of special note turned up apart from swarms of *P. gamma* and a number of *N. noctuella*. The migratory urge, however, did seem to be affecting some of the common species; single specimens of *Rhizedra lutosa* Hb. and *Nonagria typhae* Thun., which have not appeared in my trap before in five seasons, climbed the hill to my light, and more *Gortyna flavago* Schiff. (*ochracea* Hb.) than I have seen here before also turned up.

## Northern Lights—A Visit to Unst

By Commander G. W. HARPER, R.N., F.R.E.S.

In my Service sea-going days I have known Scapa Flow in the Orkney Isles only too well, and I had many times wondered what those treeless Isles even further north in the wild Atlantic were like; but duty had never landed me there. It was the sight of some of the marvellous specialised moths taken in Unst by Mr. R. P. Demuth and Mr. E. J. Hare, and reading the latter's fascinating and amusing article "Unst revisited" (*Ent. Rec.*, 69: 80) which focussed my desire to collect in the far north. So when Dr. C. G. de Worms told me of his intention of going to collect there in August 1958 and asked me if I would care to accompany him, the temptation was too great to resist, and the necessary arrangements were made.

I will not repeat here the excellent sailing directions so vividly illustrated by Mr. Hare, except to add that now it seems that normally a day must be spent in Lerwick before the *Earl of Zetland* arrives and sails again for Unst. Dr. de Worms and I were lucky however in that a special excursion was being run by her on the day of our arrival at Lerwick on 12th August. We arrived in a thick fog, which so often accompanies fine south-easterly weather. We sailed again in the *Earl* at 6 p.m. just as the fog shut down again. I have seldom seen a finer piece of pilotage than that shown by this ship's officers, although they would be the first to attribute it to that modern marvel, radar. We called at several positively hair-raising little harbours with amazing accuracy, and with little delay. I was also full of admiration for the quiet efficiency of the ship's small company and the Islanders helping them at each port of call; they worked together in absolute quiet and mutual understanding, and I did not hear a single order given the whole voyage, apart from the engine-room telegraphs! Quite a refreshing change from some other services where the sequence of events is not infrequently "order, counter-order, and—dis-order"!

We arrived at Uyeasound on the south coast of Unst at midnight, still in thick fog, where we had to land in a small motor boat. I had brought my lightweight m.v. generator with me, but about a dozen passengers and all their baggage eventually found the small pier. By the time we had been driven eight miles across the island in an old bus it was nearly 1 a.m. before I was able to greet my hosts, Mr. and Miss Saxby, who had most kindly waited up with hot tea for me. Dr. de Worms was staying a mile further on at Springfield. As I was turning in that night, I was delighted to be greeted by several Noctuid

moths in my bedroom. These proved to be *Cerapteryx graminis* L. and *Apamea monoglypha* Hufn., both species, rather surprisingly, being of the ordinary English forms, but I was overjoyed to find that two very dark insects were very fresh specimens of *Amathes glareosa* Esp. ssp. *edda* Staud., the main quarry of our expedition. No wonder I slept well that night!

Day entomological work was very unproductive; there were no butterflies in evidence at all, not even the common "whites", which only occur very sporadically, as the result of either migration, or perhaps importation with vegetables. This August Geometrids were also unaccountably scarce. The only ones I was successful in walking up were some finely marked and rather yellow *Colostygia didymata* L. which I eventually found in a small colony by a lush burn on our last day, 18th August.

Four of our six nights had weather enabling us to collect; the other two torrential rain kept us indoors. The first two nights I worked my generator in the garden, resulting in a fine series of *edda*; all told I examined over 80 individual *glareosa* of which only one was typical, one dark intermediate, and all the remainder were *edda*. Large numbers of *graminis* and *monoglypha* came to my light, but only two geometers all told, a worn *Xanthorhoe munitata* Hb. and a fresh *Lygris testata* L. One or two *Plusia gamma* L. and a worn *P. pulchrina* Haw. also arrived. Dr. de Worms was working a plug-in m.v. lamp at Springfield with an improvised trap, and he had a few *Ammogrotis lucernea* L. females and *Apamea furva* Schf. as well. The former interesting moth has a most pronounced afternoon flight of the males in Inverness-shire and elsewhere; however, a long search of the rocky hills behind Baltasound the next afternoon, which was beautifully sunny, completely failed to show anything at all on the wing!

Day work, however, was not completely abortive, for in addition to the *didymata*, the sea campion, *Silene maritima*, at Haroldswick, was productive of a few larvae of the beautiful local form of *Hadena conspersa* Schf., and many *Eupithecia venosata* Fab.

The third night which seemed fairly favourable, Mr. Saxby kindly drove us to Burrafirth, where there is a sandy beach reputed to contain a colony of *Euxoa cursoria* Hufn. but conditions were against us; a blustery cold wind prevented even *graminis* from flying. Sugar was equally unproductive throughout our stay.

On the 17th August, Mr. Saxby had kindly driven me to the extreme north coast of Unst, and of the British Isles, a superb piece of wild coastline. But even here escape from the abominable nuclear twentieth century was denied us, for dominating the scenery from the top of Saxa Voord, the highest hill in Unst, was the ever revolving parabolic aerial of the new radar warning station. However, a little to the north of the northernmost house in the British Isles at Skaw Wick I found a little sandy bay, and here we determined to have a last "go" for *cursoria*. That night I rigged my generator on the sand, and when running, my m.v. lamp may have had the dubious distinction of perhaps being the most northern m.v. light ever to have operated for moths in the British Isles! Moreover, though it was a cold and clear night we were successful, obtaining a few nice *cursoria*, *edda*, and *Diarsia festiva* Schf., still more of which came to Dr. de Worms' paraffin



lamp further up the hill. These are a fine dark form, race *thulei* Staud. and very variable; some were still in fairly good condition.

To crown our pleasure, as we packed up our gear, the finest display of the Northern Lights, Aurora Borealis, which I have ever seen south of the Arctic Circle, began. The centre of a series of brilliant red, green, and white radiating shafts of light, ever flickering and changing, was in the zenith overhead. It was an unforgettable climax to an unforgettable holiday.

## Collecting Notes from the North Midlands, 1958

By Rear- Admiral A. D. TORLESSE, R.N.

Three years ago I came from South Hampshire to live at Burton Joyce, on the north side of the Trent valley five miles north-east of Nottingham. The village suffered development between the wars, but it has largely retained its rural character, being bounded on the north by a line of low hills, mainly pasture, and on the south by the very bare Trent valley, intensively cultivated and grazed. There are a few copses in the neighbourhood, but no woodlands of any size. The frequent use of an m.v. lamp, and the occasional use of a trap, has revealed a surprising number of species of moths, particularly of the Agrotidae, though as might be expected there have been few surprises.

To one accustomed to the south, Nottinghamshire has proved somewhat disappointing from an entomological point of view. Intensively and very tidily cultivated, the county has little waste land, while the afforestation of nearly the whole of the Sherwood Forest area is almost as inimical to the preservation of the Lepidoptera. Other woodlands, not extensive altogether, are mostly game preserves, and woods where pheasants are bred in numbers are seldom of very much interest to the entomologist. In particular, the butterflies have disappointed me, though I must confess that I have had far too little leisure to devote to their pursuit. However, provided one is not deterred by the distances, there are plenty of interesting localities within range, in the Pennines, Lincolnshire and the Fenslands.

1958 may not prove to be a record year for rainfall, but few of us will be able to remember such a continuously rainy season. In this area lepidoptera generally were noticeably scarcer than during the last two years. A rather mild winter was followed, as usual here, by a cold spring, and up to the end of May few nights were warm enough to tempt one far afield. The spring was a very late one, and *Orthosia incerta* Hufn. and *O. gothica* Linn., the latter rather scarce this year, were still appearing in my trap as late as 31st May. A single *Nymphalis io* Linn., not a very common species in this district, appeared in my garden on 12th April and the first *Aglais urticae* Linn. a week later, while *Pieris rapae* Linn. was not seen until 1st May.

A visit to Sherwood Forest on 22nd April in hopes of *Odontesia carmelita* Esp. produced the usual *Orthosias* and little else, and in Monk's Wood, Hunts., the following night visitors to sallow bloom and light were very similar but included a few rather worn *Orthosia populeti* Treits. A warm night on 1st May tempted me to Sherwood again, but the only newcomer was *Drymonia ruficornis* Hufn. in some numbers and fresh condition.



Early in May I was in Surrey and spent the warm but windy evening of 7th with the Baron de Worms at Horsell. Few species were flying, but among them were *Saturnia pavonia* Linn. and, to my delight, a single *O. carmelita*, the first time I had ever taken this species. Colder weather followed, and with few exceptions the nights were cold until the end of the month. The first *Euchloe cardamines* Linn. appeared in my garden on 26th. On 31st I was in Lincolnshire looking for *Carterocephalus palaemon* Pall.; unfortunately, sunny intervals were few and so were the butterflies, only two being seen. The three 'whites', *E. cardamines* and *Pararge aegeria* Linn. were flying in the same wood. I recorded 17 species at my m.v. lamp that evening, the best so far for the year, but four nights later Sherwood Forest was again disappointing on a fine warm evening; my light was inundated by *Lithina chlorosata* Scop., but I recorded only five species in all, including a few *Drymonia trimacula* Esp. Two nights later Monk's Wood was rather more rewarding with fifteen species, including large numbers of very fresh *Diarsia festiva* Schiff. and *Hepialus hecta* Linn. abundant and flying very freely before sunset in the shadier rides.

From 19th June to 10th July I was on holiday in Austria, where except for three or four days the weather over the three weeks was generally bad, and although I missed few opportunities of collecting butterflies the result was disappointing both in numbers of species met with and in the condition of many of the insects themselves.

Back in Nottinghamshire in mid-July moths were swarming to the m.v. lamp, but migrants were few. *Apeima syringaria* Linn. and *Lygris pyraliata* Schiff. turned up in my garden for the first time. On 18th July I met Mr. Jeffs near Saltfleet on the north Lincolnshire coast, where sugar and light produced a number of mainly common species, among them single specimens of *Lasiocampa quercus* Linn. var. *callunae* and *Polia nitens* Haw., the latter a species new to me but not uncommon in the Grimsby district. Of *Agrotis ripae* Hübn. and *Euxoa cursoria* Hufn., which had been the objects of the expedition, there was no sign. The following night I counted 62 species in my m.v. trap, the best for the year, yet only five nights later in Monk's Wood on a promising evening which turned cold later my lamp attracted only five species, among them, rather surprisingly at this date, several *Deuteronomos erosaria* Schiff. An evening on Beeley Moor, near Matlock, on 29th July, was even more unrewarding, *Lycophotia varia* Vill. in some numbers being the sole visitor!

The weather was unsettled throughout August; September and early October were little better. At Castor Hanglands Wood, near Peterborough, on a fine morning in mid-August I counted seventeen species of butterflies, including *Argynnis paphia* L. and *Thecla quercus* L., the latter very worn; *Gonepteryx rhamni* L. was just emerging, and *Nymphalis io* L. and *Vanessa cardui* L. well in evidence. This was easily a record for the year. In Sherwood Forest on 31st August thirteen species came to my lamp, including two fresh *Enargia palacea* Esp., also *Diarsia dahlii* Hübn., *Amathes glareosa* Esp. and *Graphiphora augur* Fab. On 2nd September I met Mr. Jeffs and others at Laughton Common, near Gainsborough, where sugar failed but our lamps produced a fair number of moths on a rather unfavourable evening. I recorded 24 species, among them a few *E. paleacea*,

*Atethmia xerampelina* Hübn., and a single *Amathes agathina* Dup. On the following night the first *Anchoscelis litura* Linn. appeared in my garden, ushering in the autumn noctuae which have been very noticeably fewer in numbers than in preceding years. Two more visits to Sherwood in early September produced three more *E. paleacea* and a few *Aporophyla lutulenta* Borkh., fifteen species in all on the 5th when moths were fairly numerous, but six only on 10th.

The autumn butterflies were generally scarce this year. Several *Vanessa atalanta* Linn. were flying with *N. io* and *A. urticae* in my garden on 30th August; but the two former were little in evidence afterwards and had disappeared within a week. *A. urticae* remained plentiful, with an occasional *P. megera* on every sunny day. Nearly a month later I noticed on 27th September a single *V. atalanta* and *V. cardui*; the former was noticed only once again, on 12th October.

The second half of October saw some improvement in the weather and nights were warmer, but few moths came to light, my best night being ten species on 23rd October. On 31st I visited Clumber Park in the Sherwood district to search the lime trees for *Brachionycha sphinx* Hufn. which I had found there in some numbers in 1956. A single pair *in cop.* rewarded two hours' work. Two completely blank nights with my lamp during the first week of November convinced me that moth-hunting was over for the year.

## Collecting Notes 1958

By W. REID

In my collecting notes of last year, I wrote of my uncertainty of the identity of some larvae, the eggs or young larvae appearing on some *Silene otitis* which I had gathered from the ground after having been cut by a mowing machine, and which was, at the time of gathering, in a fresh condition. These larvae proved to be those of *Anepia irregularis* Hufn., and forty-two moths were bred from them in May this year.

For some years I have hoped to visit Ireland in June to get a series of *Hadena caesia* Sch., and circumstances this year enabled me to do so. But, owing to the general lateness and uncertainty of the season, my series eventually resolved itself in four of this species, two of which, both males, were taken in two nights collecting near Tramore on the 3rd and 4th of June, and two a week later at Doolin near Lisdoonvarna. At the first place we had very strong winds, which made collecting conditions on the cliff tops somewhat uninteresting. In addition to the two *caesia*, only one *Hadena barrettii* Dubl., and several of the purple form of *Heliophobus anceps* Schf. Little else appeared—the high winds preventing insects coming to the light even if flying. The two *caesia*, by the way, turned up about 12.15 a.m. almost together. The daytime weather was brilliant and it was most interesting to watch the fulmars and choughs flying along the cliff faces.

On 5th June we moved on to Killarney, but here my movements were much restricted by brake trouble on my car. Except for one evening, collecting was restricted to the use of the trap in the Hotel grounds, but much of interest appeared in the four nights we were there. Several of the pale form of *Stauropus fagi* L., together with six

*Apatele alni* L. were seen on examining the trap on the morning of the 7th June, together with a number of the cream winged form of *Spilosoma lubricipeda* L. and one *Tethea fluctuosa* Hb. *Perizoma blandiata* Schf. was also present as a singleton. In all, 89 species were noted in the trap. One night spent with the m.v. lamp and a borrowed car in the demesne was not very productive, little of interest appearing.

We moved on to Lisdoonvarna on the 9th June and used the m.v. lamp on the rocks at Doolin that night, which was certainly the best of the six nights we were there, but very few species put in an appearance. The most common was *Hada nana* Hufn. Next in numbers *Hadena lepida* Esp. var. *capsophila*, a very dark form and both males and females. Two *caesia*, a very blue form and both males appeared, again about 12.15 a.m., and one *Apatele euphorbiae* Schf. ssp. *myricae* Guen. Several other common moths were present, but none in profusion, perhaps not surprising as the sheet and lamp were only some five to six feet above sea level and not more than thirty yards from the sea on the flat rock surfaces. The terrain is peculiar, similar to the Burren, where the limestone is broken up in slabs and rocks by rifts and crevices containing vegetation, which at Doolin is mostly grass, maritime campion and another white flower which somewhat resembles the campion in size and colour.

The lamp was used on the following four nights in the same place, but owing to cold clear nights with considerable wind, little came in. Two of the nights were completely blank!

We were fortunate in having very sunny weather during the whole of our stay. It was, however, cool and few butterflies were seen. But I did find a good colony of *Zygaena purpuralis* (Brunn.) on the one stretch of sandhills in the district, the moths just emerging and drying their wings. A number of *Zygaena filipendulae* Linn. were noted in the same area, and two of these were taken with the two spots near the outer margin being confluent. The only other moth of interest to me was *Setina irrorella* L., a few of which were disturbed during daytime walks.

As my *caesia* were so few in number, I spent the day before my return to Holyhead in collecting campion flowers in the hope of getting sufficient larvae therefrom to augment my series by breeding some, as I felt sure that some females would be flying. I found many eggs on these heads, some of which were obviously noctuid eggs and of two species. In addition some small geometer eggs were also present. As many of the eggs had already hatched, it seemed probable that young larvae were in the heads. When I returned home, I gave the heads the first shaking, and the first larvae which were shaken out were seen to be those of *lepida*—the distinctive lines being visible even in the small larvae by the use of a hand lens. No others appeared at the first shake. This procedure was continued with twice daily, and soon another noctuid larva appeared, at first as singles and later on as many as two or three per day. These gave me more trouble to identify as I could not distinguish any of the characteristic markings which show up so clearly in *Hadena bicruris* Hufn. At the time I had never seen larvae of *Hadena conspersa* Schf., but I did not think they were of this species, because during my collecting at Tranmore, Killarney and Doolin I did not see any imagines although it was the most

common moth at the sheet at Holyhead where 25 or 30 appeared the night before I left for Ireland

The shaking of the campion heads was continued for over a fortnight—long after the plants were dry, and more larvae kept appearing. A large proportion were *lepida*, and I finally found that I had thirty-two of the unknown species; two green which were, of course, *Hadena cucubali* Schf. and a few of *Eupithecia venosata* Fab. As I live in a district where any kind of campion is a rarity, food plant might have been a problem had not my son been near Holyhead on his holidays, and he was able to send me campion head parcels twice weekly, mostly gathered at the place where I had seen all the *conspersa* earlier in the month. These heads also produced many small larvae which had a much more distinctive pattern and which were obviously *conspersa*. A few *bicruris*, two *cucubali* and several *venosata* were also taken from these Welsh heads.

These food supplies lasted until the end of the third week of July. The larvae were then getting pretty large, and some of them obviously would be pupating soon. For these I was able to get one further supply of campion from a friend at Holyhead, and eleven of the *caesia* larvae finally pupated having been fed entirely on campion. They ate the petals and the green unripe seeds but did not seem to like the pods after they had swelled and assumed the harder state, even though they were still green. The remainder of the larvae had to be put on to garden pinks and they appeared to thrive on these, and I finished up in early August with 26 fine large pupae, the larvae going just below the surface of fine peat moss, and pupating in an almost upright position. Perhaps this posture accounts for the anal segments of the pupae curving in towards the ventral surface, to form a very open hook. The pupae are red brown in colour and considerably larger than those of *conspersa*.

The grown larva is most distinctively marked immediately after the last change of skin, when the diamond pattern is easily discernible along both the sides. At this stage the larva gives the impression of being very dark, so thickly is it "dusted" with black specks, but as it becomes full fed the ground colour becomes considerably paler, the diamond pattern almost disappearing. There are no very obvious spiracular nor dorsal lines.

Mr. Demuth has stated that he thinks these larvae are cannibals, and I am inclined to agree with him. Because of this, I kept my larvae two in a container until they were about to change into their final skins. I then put one in each container until I ran out of containers, and was forced to put three each in the last three containers I had. These containers finally yielded one pupa each and two dead larvae, there being no sign of the other four, which I am quite sure did not escape.

On my return from Ireland, I found things very late in Sheffield. *A.alni* did not put in an appearance in the trap until early July, six fresh specimens appearing in the first week. One of these was a black female which provided a number of eggs which I was able to distribute among friends. But the weather was very wet and even stormy, and little of note turned up in the garden before I went to Scotland for the August Bank Holiday period.

We left home on the Friday morning and arrived at Dalwhinnie for an evening meal, with plenty of time to get the portable trap into operation before dusk. This done, we set up the m.v. lamp on the Dalwhinnie-Laggan road in the hope of finding *Apamea exulis* Lef (*assimilis* Dbld.) flying. We were there again on the Saturday, Sunday and Monday nights but conditions were most unsuitable on the high ground and little was seen. Two *assimilis*, however, appeared in the trap at the Hotel—one on Friday night, and one on Saturday. In addition, many *Entephria caesiata* Schf. and *Xanthorhoe munitata* Hb. were about on the lower ground.

On the Sunday we moved the trap to Kincaig, where we stayed for two nights at the Suie Hotel. The proprietors of this hotel own a large area of rough ground which runs down to the shores of Loch Insh, mostly covered with heather and small birch and bordered on one side by a large birch wood—an ideal situation for the trap, which was put up about 300 yards from a power point in the hotel. On Sunday night, the light was switched on before leaving for the road at Dalwhinnie. The difference in weather conditions in the two places was remarkable. At Dalwhinnie a cool clear night, with rain clouds on the horizon which never came up to obscure the rising moon; at Kincaig—a dull warmish night with occasional light drizzle. On looking through the trap on the Monday morning, I found 25 very fresh *Triphaena sobrina* Bdv., with a host of other insects including one *Amathes depuncta* L. which was evidently just coming out. On the Tuesday morning, a further 15 *sobrina* and one more *depuncta* were in the trap, a female *Eurois occulta* L. and a female *Plusia bractea* Schf., both these providing eggs. There were numbers of the smallish Scottish form of *Crocallis elinguaris* L. and *Eupithecia sobrinata* Hb. among the other species. 61 species noted.

We returned to Sheffield on Tuesday as soon as the collecting gear had been packed. Rainy weather persisted for the rest of the week, with little appearing in the trap, until Saturday when we joined our family at Treaddur Bay near Holyhead. Here we had one good collecting night on the 11th August, when 95 species managed to get into the trap, including one fresh male *Laphygma exigua* Hb. Other insects of interest were *Euxoa cursoria* Hufn. (2), *Agrotis trux* Hb. ssp. *lunigera* Steph. (5), *Actebia praecox* L. (2), *Amathes ditrapezium* Schf. (1), *Hadena conspersa* Schf. a fresh female, *Leucania litoralis* Curt. (1), *Apamea ophiogramma* Esp. (2), *Celaena leucostigma* Hb. (1), many *Scopula marginepunctata* Göze, with hundreds of *Plusia gamma* L.

We returned to Sheffield on the 19th August and from that date until the middle of September, the garden trap was really productive so far as common insects were concerned. *Enargia paleacea* Esp. and *Diarsia dahlia* Hb. were about in some numbers, *gamma* in fifty to one hundred each night, a small proportion being of the small pale form. Many more *Agrotis ipsilon* Hufn. and *Peridroma porphyrea* Schf. appeared than usual. Two *Plusia festucae* L. with confluent spots have been taken, and two "new to the trap" species are *Hydraecia petasitis* Dbld. (2) and *Celaena haworthii* Curt. (1).

The eggs provided by the female *bractea* taken on 4th August hatched on 16th August and the larvae were put on to lettuce. The first moth appeared on 17th September, quickly followed by four more,

but in spite of the forcing to which they were subjected, some went into hibernation and some died, possibly because they were kept too warm. Lettuce, however, is a messy food plant, and although it was changed daily, an undue amount of wet frass made things rather unpleasant, and it is quite possible that some virus took hold which affected those which did not pupate quickly.

*Dasypolia templi* Thun. again appeared in the trap at Sheffield on the 6th October—a fresh male, but the summer has passed without any of the scarce migrants having been seen, although I understand a specimen of *Hippotion celerio* L. has been taken in Wombwell about fifteen miles north.

## Lepidoptera in N.E. Hampshire in 1958

By A. W. RICHARDS

A general scarcity was to be expected after the indifferent—to say the least—summers of 1956 and 1957. In the past season we have surely reached the nadir, not a single month rising to expectations. In an unusually cold and dreary spring I did not see a lone butterfly until 2nd April, *Pararge aegeria* L. By 1st July I had encountered seventy-nine fewer species of macrolepidoptera than by the same date in 1957. The warmer, though dull and humid, conditions in July effected some improvement and by 1st August, the deficit was reduced to ten: by 1st September, indeed, nineteen more species had come to my notice than in 1957.

For a true picture of the appalling scarcity account must be taken of the extraordinary number of singletons. *Thecla quercus* L., for example, only appeared at 11 p.m. at a m.v. lamp in Pamber Forest. Others in this category were *Strymonidia w-album* Knoch, *Aricia agestis* Schiff., *Celastrina argiolus* L., *Cerura furcula* L., *Clostera curtula* L., *C. pigra* Hufn., *Dasychira fascelina* L., *Lymantria monacha* L., *Trichiura crataegi* L., *Nola cucullatella* L., in addition to many normally fairly common Noctuae and Geometridae. Moreover, in order to make the best of what threatened to be my worst season, my m.v. lamp trap was operated throughout all suitable nights; in previous years I always turned it off at midnight.

The following totals at this trap for the past three years speak for themselves:—

	1956	1957	1958
<i>Hyloicus pinastri</i> L.	70	75	17
<i>Biston betularia</i> L.	308	189	96

The proportions of the three forms of *P. betularia* were almost the same as in previous years:—*betularia* 46, *carbonaria* 42, *insularia* 8.

The total of all species of macrolepidoptera was 393, two fewer than 1956 but twenty-three more than 1957.

Against the general trend *Thera obeliscata* Hübn. was in the utmost profusion, especially the second brood, and both *Pieris brassicae* L. and *Aglais urticae* L. became abundant in August, probably the result of immigration. I captured a fine *A. urticae* var. *nigrocaria* on Hackhurst Down on 10th August.

The appearance of *Vanessa cardui* L. on 10th May was not followed by any numbers in this area: in all only 47 imagines were sighted.

Though two larvae were previously seen, *Vanessa atalanta* L. did not put in an appearance until 6th August and was always scarce, but 42 coming my way, including 10 seen on trees bored by *Cossus cossus* L. on 31st August.

During the year I was able to add to my published list\* *Plusia ni* Hübn., 9th August; *Craniophora ligustri* Schiff., 18th July; *Celaena leucostigma* Hübn., 15th August; and *Tiliacea aurago* Fab., 23rd and 27th September. I reported the first of these in 1953, but de Worms declared it to be a variety of *Plusia gamma* L., in his own words, "a much better thing than *ni*". *T. aurago* underlines the reason why "hope springs eternal". I had never seen it in thirty-seven years' collecting, and the night of 23rd September was so wet and windy that I went out to turn off the m.v. lamp at 9 p.m. Only one moth had entered—*T. aurago*!

Searching in reed-beds proved *Nonagria typhae* Thun. and *N. geminipuncta* Haw. to be generally common around Fleet, and I have hopes of finding more *Arenostola phragmitidis* Hübn.

Though still below normal, *Nymphalis io* L. was more in evidence than for several years, and I was certainly surprised to see *Melanargia galathea* L. on 9th August fly across my garden, which is situated in extensive pine woods. This year's curios, for such a site, include *Hemistola immaculata* Thun., 21st July, and *Angeronia prunaria* L., 4th July.

A perusal of my aforementioned list\* demands a correction:—For *Xanthorhoe munitata* Hübn. should be read *Chloroclysta siterata* Hufn. How I came to write *munitata* is a thing that "passeth all understanding". *Acrobasis tumidana* Schiff. should also be deleted; originally identified by W. Fassnidge, my specimens have been determined by Huggins as small *A. tumidella* Zinck. The omission of *Apamea secalis* L. from the list has also been pointed out to me: it is, of course, abundant.

\*"The Macrolepidoptera of the Aldershot district of N.E. Hampshire". *Ent. Rec.*, 69: 114, 140, 177, 202.

## Collecting in 1958

By The Rev. G. A. FORD

I have been asked to send the *Record* a note "from Cambridgeshire" for this last season and am glad the request was so worded, and not "about Cambridgeshire", as I have done little collecting in the county this year.

It may surprise many to know that in the whole county any wild, uncultivated land is practically non-existent. The same is true of the fens; only Chippenham, Wicken and Dernford fens remaining unclaimed, with the addition of a few very small patches, much scattered, such as at Fulbourn. Thus it follows that, other than the above-mentioned fens, there are very few good collecting grounds.

Taking all this into account, and considering also that the Parish of Balsham is on comparatively high ground, with the result that windless nights are few and far between, and that the north wind often prevails for many weeks, it is not surprising that numbers of insects taken at light (m.v.) are generally low, and many species, common enough elsewhere, are never seen.



So the Spring of 1958 was a complete 'flop', the only captures of note for the whole year being:—

5th June. *Lophopteryx cuculla* Schiff. One male, a very early date.

12th July. *Spaelotis ravida* Schiff. (1). *Hadena compta* Schiff. (1).

*Zeuzera pyrina* L. (1).

5th August. *Leucoma salicis* L. (1). *Heliothis peltigera* Schiff. (1),

*Spaelotis ravida* (2).

3rd September. *Ennomos quercinaria* Hufn. (2). *Atethmia xeram-*

*pelina* Esp. (1).

Two more *compta* were recorded later than 12th July and several more *ravida*.

A flourishing colony of *compta* is now conveniently established just outside the study window: over 50 larvae were taken this year. I am keeping some pupae indoors to (we hope) 'buck up' the colony next year. If any collector would like this species I will endeavour to produce some pupae for him next year.

It seems to me waste of space and not of great interest to record long lists of quite ordinary species noted, so that I only mention what seems to me really worth listing.

With regard to the 'Breck', results were poor. *Lithostege griseata* Schiff. still keeps up good numbers. *Anepia irregularis* Hufn. larvae were not seen at all in their former stronghold; but I believe this species has now removed a few miles away to a new home (wise insect!). *Triphaena orbona* Hufn I could not find, nor *Scopula rubiginata* Hufn. I did not look for *Emmelia trabealis* Scop. (*sulphuralis* L.).

A few *Eilema deplana* Esp. were taken at Tuddenham on 4th August at m.v. light including one vast female with wings coloured like *E. griseola* Hübn. except for yellow streaks along the outer margin of forewings. The males also were larger than usual, probably owing to a damp season producing attractive pabulum. Incidentally, has any collector noted this species in this area? 'South' makes no mention of East Anglia as a locality. A larva of *Euphyia cuculata* Hufn. was taken by night in this area.

Larvae of *Chesias legatella* Schiff. (*spartiata* Hbst.) and *C. rufata* Fab. were fairly numerous in various scattered localities (one larva of *Hyloicus pinastri* L. was beaten, but died) on holiday, and after much searching I found a good colony of *Arenostola morrisii* Dale (*bondii* Knaggs) in Dorset (27th June). Very fortunately I spotted a moth by day among the foodplant, which told me that (a) I had found the locality, and (b) the foodplant, about which I had been doubtful. I don't believe this particular area has been worked since about 1885 or so. The original spot has been destroyed by landslides. The only other noteworthy insects were *Pyrria umbra* Hufn. (2) and *Ammogrotis lucernea* L. (1). There was very little flying. *A. bondii* flew for exactly 30 minutes at dusk (as I had been led to expect), and then vanished. Actually three were found at rest later on.

After hearing of the 'snags' of collecting at Folkestone, i.e. wandering visitors, rocks, hills and high wind and so forth, I was very pleased with the tiny but sheltered and flat area chosen by *bondii* in the West. It seemed to concentrate among the clumps of coarse grass brought down by a landslide.

At Churchingford near Taunton I ran a m.v. lamp near the farm-



house where we stayed. The weather was not very good, but I was pleased to take (1st-2nd July) several *Euphyia picata* Hübn., *Semiothisa alternaria* (Hübn., *S. liturata* Cl. (I have never taken these two last species together before), *Cleorodes lichenaria* Hufn., and *Perizoma affinitata* Steph. (the last a scarce moth for me). A single specimen of *Scopigera ichneumoniformis* Fab. flew into the car when I was near Taunton and was captured in a matchbox. How often complete lack of boxes produces a good bug! (My first *Arenostola elymi* Tr. was taken at Hunstanton, shortly after the War, in a discarded soup-tin).

A week-end with Mr. Mere at Chiddingfold was pleasant in every way. *Haplotis venustula* Hübn. turned up in his m.v. trap in the garden, so I need not explore (probably in vain) the Brentwood area.

A dash to Titchfield Haven (5th July) produced a few *Leucania obsoleta* Hübn., which I have been unable to take in Cambridgeshire.

On 17th July I visited Mr. More at Rayleigh. A night expedition to the nearby saltmarshes produced little of note. *Leucania favicolor* Barr.—our quarry—did not appear, but a few were found next morning in Mr. More's trap at home, together with two *Sterrhia rusticata* Schiff.

A visit to the Southwold area (22nd to 25th July) did not produce *Nonagria neurica* Hübn. this year (too cold, I fear), but a slightly warmer night subsequently produced a good number of *A. elymi* and *Apamea oblonga* Haw. (*abjecta* Hübn.) on the Southwold 'sandhills'—if worthy of the name—also a few *Scopula emutaria* Hübn.

Larvae and pupae of *Nonagria sparganii* Esp. were found in small numbers near Thorpness.

A visit to the Broads (12th-15th August) produced a few *Arenostola brevilinea* Fenn. They would not come to light or hemp agrimony flowers but were all taken at a very small patch of flowering reeds of some unusual kind about 7 feet high in the Horning area; two *Mormo maura* L. (which seems scarce at present) were taken at sugar and several *Zenobia retusa* L. flew to the hand-lamp.

*Papilio machaon* larvae, both first and second broods, were taken in several places. All the second brood larvae died, which I am told often if not usually happens. I lost 25 last year—100 per cent failure.

14th August was for me the greatest night of the year. I ran a m.v. lamp in the garden of the Cross Keys inn at Bilham, where Mr. and Mrs. Yaxley extend a hearty welcome to collectors, or did before my visit this year!—when on the night of 14th August all the windows on one side of the house were filled with midges on the inside, which had to be dosed with a 'flit gun', and then all the windows washed down—several hours' work. I left for home on 15th August like Agag, treading delicately and bursting with apologies. The cause of all this bother was a marvellous collecting night when everything that could fly did so and I had the trap too near the house.

It is nice to be able to do two things at once, especially if one chooses the right occasion. I left the m.v. lamp burning at Bilham and departed to collect at Horning. On returning to Bilham I found the lawn round the lamp literally crawling with insects, a mass of moths and midges circulating round the bulb, hundreds more on the sheet upon which the lamp stood and each crevice of the numerous egg cartons nearly packed five deep on both sides with moths, a total 'congregation' of two to three thousand.

The most amazing capture was one *Plusia bractea* Schiff. in good condition; there was also one *P. festucae* L. This species was obviously only just emerging (second brood); a few rather worn *Pelusia muscerda* Hufn., seven *Harpyia furcula* Cl., plenty of *Deuteronomos erosaria* Schiff. (never yet taken at Balsham at light though I have beaten the larva in local woods), many *Coenobia rufa* Haw. including one blackish specimen, many *Nonagria dissoluta* Treits. varying from coal black to one huge pale female nearly as big as *Arenostola brevilinea* Fenn. Captain Jackson at Codford, Wilts., reports that he too recorded the biggest 'take' there on the same night. I wonder if there are any other reports of a like nature.

I wound up a very pleasing and successful season (though of course there were several quite fruitless trips) with a journey to the Norfolk coast for *Eupithecia extensaria* Freyer larvae. Last year I found only four in another locality; this year I could get as many as I wanted. I stopped at about 40! Probably the locality visited last year had been flooded out. Contrary to the reports of others I found the larvae only on foodplant which had not been under seawater. Plants covered with mud and containing dead crabs roosting in the topmost shoots produced nothing.

The closing season at home seems as bad as the spring, which produced nothing of note. At date of writing (11th October) only *Plusia gamma* L., *Agrochola lychnidis* Schiff., *Allophyas oxyacanthae* L. are turning up, and one *Agrochola circellaris* Hufn. No signs of such things as *Aporophylla lutulenta* Schiff., *Agrochola lota* Cl., *A. macilenta* Hübn., etc., which must be busy cramming other folks' traps. As the parson said to his congregation at Harvest Festival (which we have just had here) "I wish you all a happy Christmas, as I shall not be seeing you again before then".

## Lepidoptera in Dorset in 1958

By Brigadier H. C. WARRY

It has been a very poor year for insects, but the following species were recorded at my m.v. light at Upwey or as specially noted:—

*Harpyia furcula* Cl. One taken on 3.viii had the central band and cloud towards the tip of the forewings of a distinctly ochreous colour instead of grey.

*Notodonta dromedarius* L. One, 22.viii. My first in Upwey.

*Thyatira batis* L. Three, 17.vii.

*Polyplocia ridens* Fab. One, 22.iv, hatched from larva taken in Yellowham wood, 7.vi.57.

*Arctia villica* L. One, 17.vi.

*Coscinia cribraria* L. Six at Morden between 15.vii and 25.vii.

*Lithosia quadra* L. Ten between 21.vii and 15.viii; one, 13.ix (very late).

*Eilema sororcula* Hufn. One, 9.vi; two, 16.vi. My first in Upwey.

*Phalaena typica* L. One, 17.vi. My first in Upwey.

*Leucania pudorina* Schiff. One, 9.vii. My first in Upwey.

*I. obsoleta* Hb. One, 10.vi. Second record for Dorset.

*L. straminea* Tr. One, 7.viii.

*L. litoralis* Curt. One, 9.viii. My first in Upwey.

- L. comma* L. One, 22.vi. My first in Upwey.  
*L. l-album* L. One, at sugar, 1.x.  
*Laphygma exigua* Hb. One, 15.v; two, 18.v.  
*Atethemia xerampelina* Esp. Four between 5.ix and 17.ix.  
*Lithophane socia* Hufn. One at sugar, 28.ix.  
*Heliothis maritima* Grasl. Morden: one, 15.vii; six, 22.vii.  
*H. peltigera* Schf. Harold Symes and I took one on the Chesil beach by day and five at light at Lodmoor, 10.vi.  
*Plusia festucae* L. One, 31.viii; one, 5.ix.  
*P. pulchrina* Haw. One about half the normal size, 17.vii.  
*P. ni* Hb. One, 15.viii. My first in Upwey.  
*Lygephila pastinum* Tr. Two, 11.vii.  
*Laspeyria flexula* Schf. Two, 14.vii; one, 19.vii.  
*Sterrhia muricata* Hufn. Morden, one, 15.vii.  
*Apocheima hispidaria* Schf. One, 14.ii, from larva taken in Yellowham wood.  
*Biston strataria* Hufn. Three, 9.iv.  
*B. betularia* L. Twenty-seven between 7.vi and 1.viii. No melanic specimens this year.  
*Zeuzera pyrina* L. One, 14.vii.

## Notes on the Microlepidoptera

By H. C. HUGGINS, F.R.E.S.

*Eurhodope cirrigerella* Zinck. I shall be interested to hear if anyone has taken this very local Phycitid since the war. Shortly before the war Fassnidge found it not uncommonly in several places on the chalk downs near Winchester. The best date to get it in good condition was the first week in July; in that week in 1937 my late friend, W. S. Gillies, and myself went to stay at Southampton and Fassnidge took us to the best places one afternoon. We got all we wanted; the moth on warm afternoons sits on the heads of the large scabious and flies gently off when disturbed. It appears to be most easy to catch, as it flies slowly and does not drop, at any rate on warm days. I am wondering, however, if the furious activities of various agricultural bodies since the outbreak of war have destroyed the little rough patches where the scabious grew luxuriantly; moreover the extermination of the rabbit by myxomatosis may have had an equally bad effect on the plant. In many chalk districts which I still visit the marjoram and horseshoe vetch have been smothered by coarse grass and even the knapweed has suffered.

Fassnidge found the larva quite commonly in the scabious heads at the beginning of August, but only succeeded in rearing an odd one or two, and told me the collection of the larva was useless and destructive in his opinion.

It may be as well to warn those who have the coloured edition of Leech's *Pyrilides* that the figure of this moth (Plate 10: 8) is quite incorrect; it is there shown with strong basal and terminal bands and a discal dot, whereas the forewings are absolutely without marking, a plain yellowish-grey. As the figures in Leech were hand-coloured it may be that the illustration in my copy was an aberration of the artist's, and others may be correct.

*The genus Hemimene*: The time is rapidly approaching when these insects may be obtained by digging roots of their food-plants. In most places in the south *H. sequana* Hübn. and *H. saturnana* Guen. may be obtained in roots of tansy, and in many cases they will be accompanied by *H. flavidorsana* Knaggs. I have seldom taken the trouble to pot up these roots; I just plant them in the garden and in a year or so, if not the first year, the moths will be found commonly flitting round in the late afternoon. It is curious how *flavidorsana* accompanies the food and flourishes; I found it abundantly in a garden on a heavy clay at Faversham in 1925 and this year it was equally common on a few plants, obviously introduced, on Tresco, Isles of Scilly.

*H. sequana* may also be found sitting on yarrow in the afternoon sun.

## Field Work

In the January and February numbers of the *Record* this year (*Ent. Rec.*, 70: 22 and 50) something was said about winter storage of pupae. Here are some further notes on the same subject. Like the previous articles they are intended for beginners; but should they come beneath the eyes of experienced practitioners it is hoped that these adepts will not hesitate to put me right, in these pages, on points where their experience has differed from mine.

The larvae of many species which we rear in our cages do not always follow the rule of their kind: there are such things as adaptability and the plasticity of (what we used to call) instinct. Sometimes *Mormo maura*, the Old Lady, spins up under moss on a tree trunk or behind dead bark; cocoons of *Craniophora ligustri*, the Coronet, are quite often to be found under a wall-coping; the Kittens (*Harpyia* genus) pupate under loose bark or on some adjacent stump at times; *Cerura vinula*, the Pusmoth, has been known to spin his cocoon on a brick wall. Usually *Atethmia xerampelina*, the Centre-barred Sallow, pupates in the ground a foot or so from the trunk of his native ash; but I have found his pupae under moss six feet up on the trunk of a tree. Yet each species has a family rule so to speak, and nine times out of ten the family rule is followed. So the wise rearer of Lepidoptera provides the larvae in his cages with pupating conditions which approximate as closely as possible to those which the larvae would normally adopt in the wild. Until he is well equipped with experience he will find the pupation site of each species given in his textbooks (e.g. in Newman & Leeds' *Text-Book of British Butterflies and Moths*).

Thus in whichever category our larvae come we must furnish our cages with the requisite site and conditions. Clearly if they pupate above ground we cannot insert tree stumps and gate posts, nor even fences and wall-copings, in our cages; but we can provide pieces of well-creviced bark, irregular chunks of dry rotten wood dug out of an old decaying tree, 'virgin' cork, and suchlike rough stuff. By the way, see that you sterilize all such material before you put it in the cage; for it may, and probably will, harbour other insects and arthropoda inimical to larvae, not to mention molluscs, which have a perfect passion for pupae. The simplest way is to bake it.

Many of the species which pupate on the ground require moss,

others merely a litter of dead leaves, twigs, beech-mast, and such débris as one customarily finds beneath their foodplant—sterilized of course. Moss one can gather from the ground in woods or on hedge banks. Spread it out to dry, and when it is dry sterilize it by heating. This is best done by dipping it in boiling water, squeezing hard, and spreading out again on a newspaper to dry. It must not be put into the cages until it is as dry as a bone. Cut it up with a pair of scissors into one-and-a-half inch lengths and keep it, when not in use, in a large square biscuit tin which has a well-fitting lid. If one fails to do this, clothes moths will find it a convenient material for oviposition. Sphagnum moss, which one can usually buy from a florist or nurseryman, is excellent—but this too must be sterilized.

Indeed it is most important to sterilize moss—not just once but every season. I once reared a brood of gregarious larvae which I found in the wild, and when about to pupate a number of them proved to be ichneumonized by a small Braconid fly. Unknown to me several of the parasite's grubs left the larvae and pupated on some moss in the cage. The moss had been sterilized just before it had been put into the cage, and thinking that it was still sterile I put it, later in the year, into a cage containing a small brood of Marbled Brown (*Drymonia trimacula, dodonaea*) which I had reared from the egg. One day, to my horror, I found eight or nine Braconids buzzing about in the cage. The cage was at once taken away from the larvarium and opened to release the flies. But the harm had been done: nearly half the larvae in the cage had been parasitized. Take warning by this and sterilize moss every time it is used.

For species such as the Pusmoth and Kittens one can provide split billets of poplar with the bark on; for the Grey Daggers (*Apatele tridens* and *A. psi*), Alder (*Apatele alni*), Orange Underwing (*Archiearis parthenias*) and suchlike larvae which bore into bark or dead wood to pupate, one must take a drill and bore slanting holes with a  $\frac{3}{16}$  inch bit in a thick piece of bark (baked first of all to kill beetle grubs and other possible enemies) for them to creep into and complete the burrow to their liking. Or we can let them do their own boring in a piece of 'rustic' or 'virgin' cork (sold by nurserymen and florists) or in 3-inch lengths of dry elder stem (if it isn't dry it will shrink as it dries and so crush the pupa). If you provide elder stems do not remove the pith; larvae like boring into this. All the other materials for larvae in this category can be supplied without one's ingenuity being taxed to an undue extent.

By the way, when the time comes to 'winter' these bark and wood-boring species do not break up the pieces of elder stem or cork or bark inside which the larvae have pupated but put the material intact on a tray inside the pupa-cage. The Wainscots (*Leucania* genus) with the exception of *Meliana flammea*, the Flame Wainscot (a local insect confined to about three counties) and nearly all the other species which pupate inside the stems of their foodplants pass the winter as eggs or larvae; so the question of wintering them does not come within the province of this article. When they pupate leave the stems which contain their pupae in the water-bottles and see that the bottles are kept full until the moths emerge; otherwise the stems may dry up. Remember to plug the necks of the bottles with cottonwool.

## PUPATING COMPOSTS

With regard to those larvae which pupate in or on the ground: what kind of earth is one to provide?

I do not recommend anyone to use earth at all, ever. There are certain species whose requirements differ somewhat from those of others; but until the breeder of Lepidoptera has learnt individual requirements by his own experience and by the experience of his friends and correspondents, by his textbooks and by accounts printed in the entomological magazines, he will not go very far astray if he fills his pupating-troughs with a mixture of peat and coarse silver ('Bedford') sand—about six parts of peat to one part of sand. Break up the peat until it will pass through a sieve with a  $\frac{1}{4}$ -inch mesh; then riddle with a wire gauze to remove the dust.

Peat should be soft brown stuff, not the hard, dark, almost gritty material used by nurserymen for certain plants. It should be fairly flakey and not contain too many fine root fibres.

The reasons why I do not recommend the use of earth in the pupating-troughs are these. Most of the larvae which one breeds do not pupate in wet soil, and if one puts dry earth, or even moderately damp earth, in the pupating-troughs it will soon become quite dry and then one will be faced with the problem of preventing the pupae in it from becoming 'quite dry' as well. Moreover, if the earth is sterilized by heating to boiling-point, as it must be, otherwise it will harbour mould-spores and various forms of life inimical to pupae, it will dry up even sooner, and cake. If this caking takes place after larvae have entered it the emergent moths may not be able to reach the surface, at least uncrippled, even if they survive this desiccation. Also peat is much cleaner and more pleasant to handle than soil. It does not become acid; it does not swarm with harmful bacteria like sour soil; it does not grow moulds (provided one does not make it too damp); and if properly kept in a large biscuit tin with a tightly fitting lid it is always ready for use and always in good condition.

I do not recommend the use of cocoanut fibre, advocated by some lepidopterists, since it is a favourite resort of various arthropods inimical to larvae and it does not stand sterilizing by heat. If it is sterilized by chemical means sufficient of the chemical will probably remain to kill the pupae, and if it is heated to a degree fatal to all organisms it becomes dusty. Then when one moistens it again it will resolve itself into a sloppy mess.

For certain species, especially some of the smaller Geometers, the material sold by florists and nurserymen for growing bulbs in bowls (not pots) cannot be bettered; but it must not be too damp, and make sure that the nurseryman has not added any chemical fertilizer. If this compost contains charcoal, in small pieces, so much the better; this will help to keep the compost sweet.

Except, again, for certain species and the smaller Geometers the compost will usually contain the right amount of moisture when a handful of it, squeezed hard, remains as a lump when you open your hand but breaks up at once into several pieces when you finger it ever so lightly. This applies to the hawkmoths and most of the Noctuidae which pupate *in* the ground. The smaller Geometers do well with dry bulb compost, but better, in my experience, in peat mixed with silver

sand and riddled through a sieve with a  $\frac{1}{8}$ -inch mesh, and served dry. Species which spin cocoons *on* the ground usually prefer the coarse peat to be dry and covered with a layer of chopped moss.

But the amount of moisture in our pupating compost varies with the species and this is a matter which only experience can teach us. If it is either too dry or too wet the larvae after going down may come up again, wander about the surface, and finally form malformed pupae. Some of the Noctuidae, including those which remain as larvae inside their cocoons for some weeks before pupating, require a damper material than those which pupate within a day or two of going down. Others require the compost to be almost dry.

There are certain species, mostly maritime, which normally pupate in sand. In these cases one must study to reproduce the conditions which the species will encounter in the wild. The Striped Lychnis, *Cucullia lychnitis*, is one of those inland species which must be provided with sand only (silver sand in this case) and quite dry at that if it is to perform its penultimate metamorphosis successfully. If the sand is at all damp the larvae may go down as one desires and as they do not reappear we may think that all is well; but when we come to turn out the contents of our pupating-trough we shall find that they have all died without pupating. We may rest assured that if a larva of any species goes to earth in our pupating-trough and there fails to turn into a chrysalis the fault is ours. The Brindled Ochre (*Dasypolia templi*) has been known to pupate in a sloppy mass of chewed carrot and even in its own frass—though I hasten to add that this last contingency is unlikely to happen with the lepidopterist who keeps his larva-cages in the condition in which they ought always to be kept; I mention it only to show that there are species which require their pupating compost to be very damp indeed.—By the way, it is important to bear in mind that the trough containing sand in which certain species have pupated should on no account be jarred or moved until one removes the pupae therefrom to the pupa-cage. Some of these sand-pupating species form very slight cocoons and any jarring may cause the sand to fall in upon them and prevent or impair pupal ecdysis.

Do not attempt to sterilize pupating compost by chemical means. What is bad for one class of organisms is very often bad for another. The best way to sterilize it is to spread it out on an open newspaper, water it lightly *per* the fine rose on the greenhouse watering-can, and then put it into cook's largest saucepan, which should have a loosely-fitting lid. Put the saucepan on the stove and keep it there until the compost is steaming freely and you judge that its temperature is about boiling-point (use a thermometer if you have one handy) for a couple of minutes, then spread the compost on a newspaper again to cool.

Let your silver sand be quite clean. If it contains any dirt spread it on a newspaper out of doors and winnow well with a fan. If it is really dirty, and you may have difficulty in obtaining a further supply of the best quality, the only thing to do is to wash it ('puddle' it) in water, changing the water until this remains clear, and then spread the sand out on a newspaper to dry.

The sand used for maritime species should be sea-shore sand, not builders' sand. See that there is no soil in it; but don't wash it.

At least nine or ten inches of sand should be provided for the mari-

time species. If you allow sand to a depth of only three or four inches some of your pupae will wriggle up to the surface in Spring, and there they will die. A certain weight of sand over them is necessary for the moths to free themselves of the pupa-case. You can prove this yourself. Uncover some pupae and lay them on top of the sand: the emergent moths will be cripples—if indeed they succeed in ridding themselves of their shells. Take up one that is struggling to emerge, jab a deep hole in the sand with a lead pencil and pop in your pupa, tail down, then fill up the hole with sand and press this down. In a short time your moth will probably emerge from the sand, run up the side of the cage, and expand its wings as you wish.

It is important that the compost for the hawkmoths, Sprawler (*Asteroscopus sphinx*), Small Brindled Beauty (*Apocheima hispidaria*) and other species which burrow deep should be pressed firmly. If you simply pour the compost into your pupating-trough the larvae of these kinds will either be unable to burrow because they cannot 'get a grip' on the compost, or else they will go through it in a brace of shakes and come to rest on the bottom of the trough in their efforts to get down to where the soil in a state of nature would be firmer. Of course you will not overdo matters and press the compost so tightly that not even a mole could burrow into it: make it firm by lightly pressing each half-inch layer as you pour it in. The best tool for this purpose is a flat piece of wood the size and shape of a playing-card, to one surface of which you have nailed or screwed a knob as handle.

## Notes and Observations

**RHODOMETRA SACRARIA LINN. IN ARGYLL.**—On 13th August 1958 I caught a specimen of *R. sacraria* L. at Crinan, Argyll. The insect was initially (at least) in good condition but got somewhat rubbed before it was secured in a box, as it was disturbed while scything some long grass and rushes, and showed no inclination to take to flight but preferred to hide away in the cut grass. I would recommend these sheltered coves on the West Coast for serious exploration by collectors. From my own experience they can be very interesting. The wooded hillsides provide habitats that are largely unspoilt, though the activities of the Forestry Commissioners are tending to change it for the worse from an entomological aspect.—J. K. C. KEMP, 12 Nab Wood Crescent, Shipley, Yorks. 8.11.58.

**MIGRANT MOTHS AT WESTON-SUPER-MARE.**—It may be of interest to record the following occurrences at Weston-super-Mare of a few of the less common migrant moths during this year:—

*Herse convolvuli* L. (1): 16th September.

*Laphygma exigua* Hubn. (2): 27th July and 27th August. (A third specimen was taken by me at Budleigh Salterton, South Devon, on 21st August.)

*Heliothis peltigera* Schiff. (8): 9th May (2) and 30th; 4th, 5th, 16th and 18th June; and 5th September.

*Rhodometra sacraria* Linn. (1): 14th September.

*Margaronia unionalis* Hübn. (4): 23rd August; 5th September; 8th and 9th October.



All the above were taken at light with the exception of the *R. sacraria*, which was taken flying at dusk.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 21.x.58.

STERRHA RUSTICATA SCHIFF. AT CHARLTON, LONDON.—Further to my articles on the distribution of *Sterrha rusticata* Schiff. (*Ent. Rec.*, **67**, 45, and **68**, 64) I should like to record that one specimen was noted at rest on a fence in Canberra Road, Charlton, on 21st July 1958. This is not an unexpected occurrence, but does confirm that the range of this insect extends several miles over the London border in this area.—A. J. SHOWLER, 19 Harvel Crescent, Abbey Wood, London, S.E.2.

HELIOTHIS PELTIGERA SCHIFF. AT WITLEY, SURREY.—Following other records of this insect, it may be of interest that a specimen of *Heliothis peltigera* Schiff. was found, almost dead, in a gutter at Witley, Surrey, on 8th June 1958. Later in the day, and further south in Durfold Forest, I noted my first *Vanessa atalanta* L. and *V. cardui* L. of the year.—A. J. SHOWLER, 19 Harvel Crescent, Abbey Wood, S.E.2.

GELECHIA BOREELLA DOUGLAS IN ENGLAND.—As far as can be ascertained, this moth has been found only in the Highlands of Scotland. The description by J. W. Douglas in *Trans. Ent. Soc.*, N.S., vol. 1, p. 105, was made from a specimen taken by Stainton on wet ground on the shores of Holy Loch, Argyllshire, on 14.vii.1850. In *The Entomologist's Annual*, 1852, is a reference to three or four specimens taken in Sutherland and there are two specimens in the British Museum taken in Ross-shire in 1896 by Salvage. Abroad it has been found in north Germany and Finland (Spuler); in France at Vallouise, Hautes Alpes and Valloire, Haute Savoie (Lhomme).

Towards the end of July in 1956 and 1958, the moth was fairly plentiful at about 1100-1200 feet near Malham in north-west Yorkshire. The habitat is the fringe of wet ground edged by birch, alder and various sallows, near which grow species of marsh plants such as *Caltha*, *Valeriana*, *Comarum*, *Pedicularis*, *Sphagnum* and various grasses. So far the food and early stages of the species are not known. Males are easily disturbed from the long grass between 0900-1300 hours (B.S.T.) and at times took wing readily enough to constitute a normal flight; their habit was to fly a few feet and settle on the upper parts of grass stems. In the afternoon not a moth could be seen or disturbed, and unfortunately no females were seen at any time. It was not found more than six or seven yards from the shelter of the surrounding bushes and was most plentiful in small bays of open ground in the shrub fringe. In 1956 the moth was in good condition from 25th-30th July and though plentiful during the same period in 1958, it was difficult to find a specimen in good condition. *G. boreella* has the appearance and colouring of *Bryotropha affinis* (Haw. in Doug.) in the net but is a larger insect (*affinis* occurs nearby but prefers the proximity of moss-covered walls). A search in situations similar to that described above in northern England and southern Scotland might prove the species to be more widespread.

My efforts at identification, though near, came to nought and I am indebted to Mr. J. D. Bradley for the correct determination and

for allowing me to see the specimens in the British Museum.—H. N. MICHAELIS, 10 Didsbury Park, Manchester, 20.

ADDITIONS TO THE SUFFOLK LEPIDOPTERA.—In 1937 the Suffolk Naturalists' Society published a final catalogue of the Lepidoptera of the county, which is still available, but in the intervening 21 years 49 species have been added, bringing the total to 1554 species that have, at one time or another, been observed in Suffolk. Accounts of the species added can be found in the Suffolk Naturalists' *Transactions* for 1937-58, but below are some details:—

1540. *Hadena compta* Fab. First Suffolk specimen at Polstead, 3 p.m., 2nd July 1953.
1534. *Alispa angustella* Hb. Taken first by Mr. Chipperfield at Stowmarket in 1949 and one came to Stowmarket light on 20.vii.51.
1543. *Platyedra malvella* Hübn. Stowmarket light, 21st June 1951 and August 1956.
1544. *Coleophora deauratella* Zell. At ordinary electric light (as the last two species), Stowmarket, 31st July 1951.
1545. *Coleophora frischella* L. 28th July 1951 at Stowmarket, ordinary light.
1546. *Phalonia dubitana* Hb. New to Suffolk at Brandon on 22nd July 1939, caught by Messrs. P. J. Burton and Claude Morley. A specimen at light, Stowmarket, 30th July 1951, and two at light in front of Mr. W. S. George's house at Adleburgh, 28th August 1958.
1547. *Eucosma cirsiana* Zell. Stowmarket light, August 1948.
1510. *Heliothis scutosa* Schiff. New to Suffolk, August 1938, in lucerne field near Lowestoft (*Proc. R. Ent. Soc., London*, Agenda of Meeting, 7th December 1938), the captor not being mentioned. I picked up a dead specimen beside The Royal Oak Tavern, Stowmarket, 9th September 1945. Mr. Alfred Waller saw one in flight on Havergate Island on 30th September 1956.
1506. *Laphygma exigua* Hübn. New to Suffolk in 1938, when several specimens were taken and several have been taken since. Four came to light at Stowmarket, July, August 1947, 1949. Mr. C. Garrett Jones was the first captor in 1938. Mr. S. Wakely kindly named my micro-lepidoptera.

—ALASDAIR ASTON, 1 Aysgarth Road, Dulwich Village, S.E.21.

A NOTE ON REARING *CALOPHASIA LUNULA* HUFN.—I notice in his article on the life history of *C. lunula*, the Rev. D. P. Murray repeats the suggestion that failure to get the larvae to pupate in captivity is due to want of sufficient warmth or moisture (*Ent. Rec.*, 70, 201).

While I should hesitate to assert that this may not be a contributory factor, I am convinced that the main cause is interference of the larvae with one another when spinning up, and this also applies to another larva from the wide, open spaces of Dungeness—*Lasiocampa trifolii* Schiff. The trouble can be avoided by keeping only a few larvae in one cage. It is better to put five or six larvae in each of several small cages than two or three dozen in one large cage, for however spacious the accommodation provided, larvae about to pupate have a habit of congregating in one or two corners of the cage, whether above or below ground. When rearing *C. lunula* in 1955, I was obliged to put about

twenty nearly full-grown larvae in one cage for a few days, during which they began to spin up. I noticed that two or three left their half-finished cocoons because another larva came and started spinning up on top of them. Last year I had only eight full-grown larvae and kept them in a wooden cage  $6\frac{1}{2}'' \times 7\frac{1}{2}'' \times 5''$ . They all spun up without any trouble, and seven formed healthy pupae from which six perfect moths emerged; unfortunately I damaged the seventh pupa just when the moths were beginning to come out. This year the first appeared on 29th June and the last on 6th July, whereas in 1956 the period of emergence extended from 31st May to 16th July. In conclusion, I think that the cocoons should be sprayed with water two or three times a week, from the beginning of May.—H. SYMES, 52 Lowther Road, Bournemouth. 29.x.58.

REMARKABLE BEHAVIOUR OF A LARVA.—On the afternoon of 16th September I was sitting in the garden when I noticed an object that looked like a larva on the underside of the eaves of my house, about twenty-four feet from the ground. These eaves are wider than the average, and the underside is flat and white. With the aid of a pair of glasses I satisfied myself that the object was indeed a larva but could not identify the species. Thinking at first that it might have escaped from an upstairs room where I was keeping some larvae in cages—the open window of this room was not far from the larva's position—I went upstairs and fixed a net to a long stick, thrust it out from the nearest window and secured the beast. It was a larva of *Pieris brassicae* L. I had not seen any of these larvae in the garden, and do not know where it came from. I suppose I should have destroyed it as a pest, but am very glad I did not do so. I carried it out into the garden and dropped it in the middle of a small lawn, at a point about twelve yards from the house. Soon afterwards, my wife and I had tea in the garden. About a quarter of an hour after I had deposited the larva, my wife caught sight of it moving steadily along the edge of a flower bed. It travelled in a direct line from the middle of the lawn, had covered about nine yards, and was making straight for the house. It crossed the path close to where we were sitting, skirted another flower bed, reached the house and began to climb. Up the brickwork and then over some rough-cast it went, until it reached the window ledge of the first floor room where I kept my larvae. It negotiated the ledge without difficulty and made straight for the window. Two attempts to climb the glass failed, and the second one ended by the larva losing its footing and falling on to the ledge, where it managed to save itself from rolling over the edge and down to the ground. It now walked along the ledge to the left until it reached the wooden window frame. It climbed up the side of this and then up some more rough-cast until it reached the underside of the eaves. Here, after some hesitation, it turned left, crossed the telephone connection, and ended up about eighteen inches from the place where I had first seen it. Here it decided to stay. The whole journey had taken about an hour and a half. Five days later, it had changed to a pupa.

How this larva had found its way back to almost the identical place is a mystery to me, especially as it is most unlikely that it had ever previously been to the place where I dropped it. Moreover, it took

the shortest way back, and twice turned to the left correctly, when a right turn would have been just as easy, but would have taken it off the direct route. It reminds me of the stories of dogs and cats finding their way back to their old homes by long cross-country journeys. And it was a cross-country journey this larva made, ending up with a pretty stiff climb. Incidentally, I do not know whether it is at all usual for a *brassicæ* larva to climb so high above ground level to pupate. One has, of course, often seen their pupae and dead larvae covered with ichneumon fly cocoons on walls at anything up to six or seven feet from the ground.—H. SYMES, 52 Lowther Road, Bournemouth. 29.x.58.

[The "homing instinct" shown by this larva is certainly new to us, but we recollect that in, we think, 1948, when there was such a plague of *brassicæ* larvae, many larvae climbed up to my roof, and at least half a dozen entered my bug room window, and spun their mats on the ceiling, but without exception, the climbing larvae produced the familiar yellow mass of *Apantales* cocoons. I have not seen the species in more than single examples since then until the present year, when I saw three flying together.—Ed.]

[For a paper on the prepupal Travel of Larvae, with observations on that of *Pieris brassicæ* L. and remarks on the biopsychology of larval travel, see *Entomologist*, vol. 75 (1943), pp. 159-164.—P.B.M.A.]

NOCTURNAL INSECT-HUNTERS.—The instance of a dormouse taking lepidoptera from a lighted window, referred to in the review of a French publication in the July/August issue (Vol. 70, Nos. 7-8) of the *Record*, recalls to mind a few somewhat similar occurrences in my own experience which may be of some slight interest.

One concerns the Familiar Chat, *Cercomela familiaris*, a bird in habits and appearance somewhat resembling the European Robin, although lacking the red breast of the latter. One of these chats roosted nightly among the verandah rafters of my house at Graaff-Reinet, and on one hot summer evening when the verandah light was in use, this bird was active throughout until 9.30 when the light was switched off, persistently flying from rafter to rafter in pursuit of the numerous moths and other insects attracted by the light.

Another and more regular nocturnal hunter of insects was Bibron's Gecko, *Pachydactylus bibroni*, several individuals of which lived in crevices under the roof, and came down the outside walls on summer nights, especially if the lights were on. This gecko is a fairly substantial looking and sluggish animal, measuring some six inches in length when full-grown.

These lizards congregated near the light, which was of the bracket type, and where the insects were most numerous. Softer species such as moths, ant lions and grasshoppers were the most favoured, and quite sizeable moths, including sphingids, were readily devoured. The gecko would approach its prey slowly and cautiously, and, when quite near, make a short rush and grab.

Frogs and toads also frequent verandahs on summer nights, picking up the insects which fall to the floor from the lights. These amphibians are often seen at street lights as well, while bats are likewise frequently in attendance.—J. SNEYD TAYLOR, P.O. Box 7011, Port Elizabeth. 26.ix.58.

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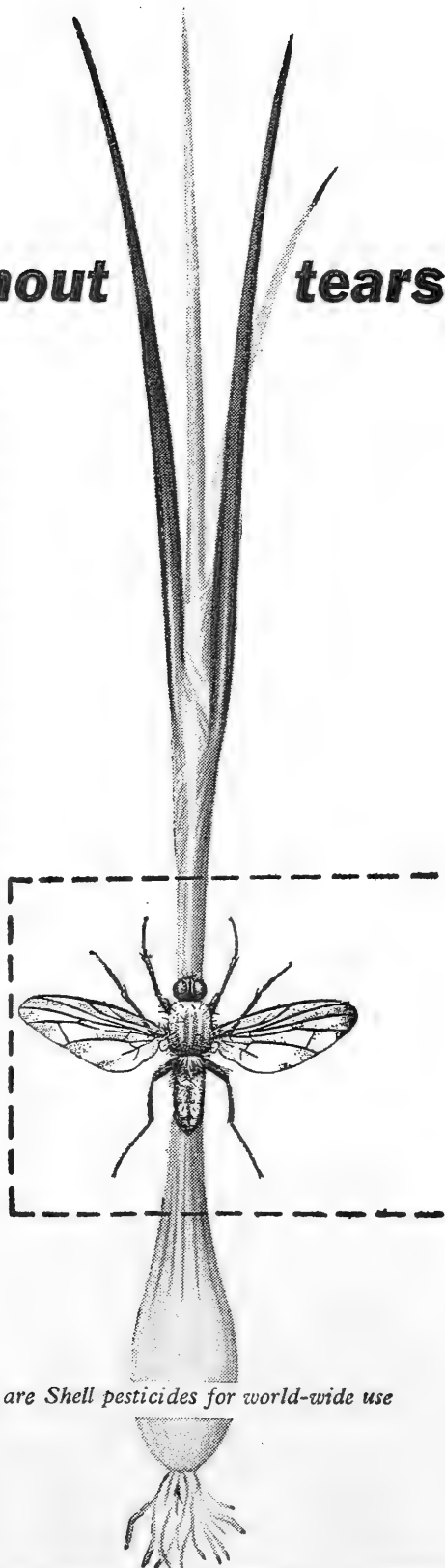


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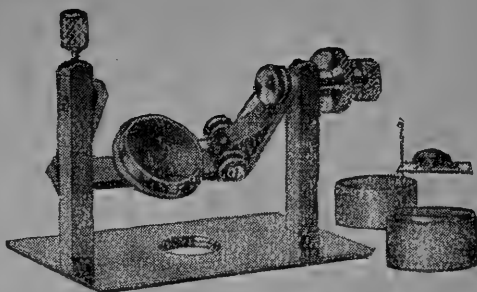
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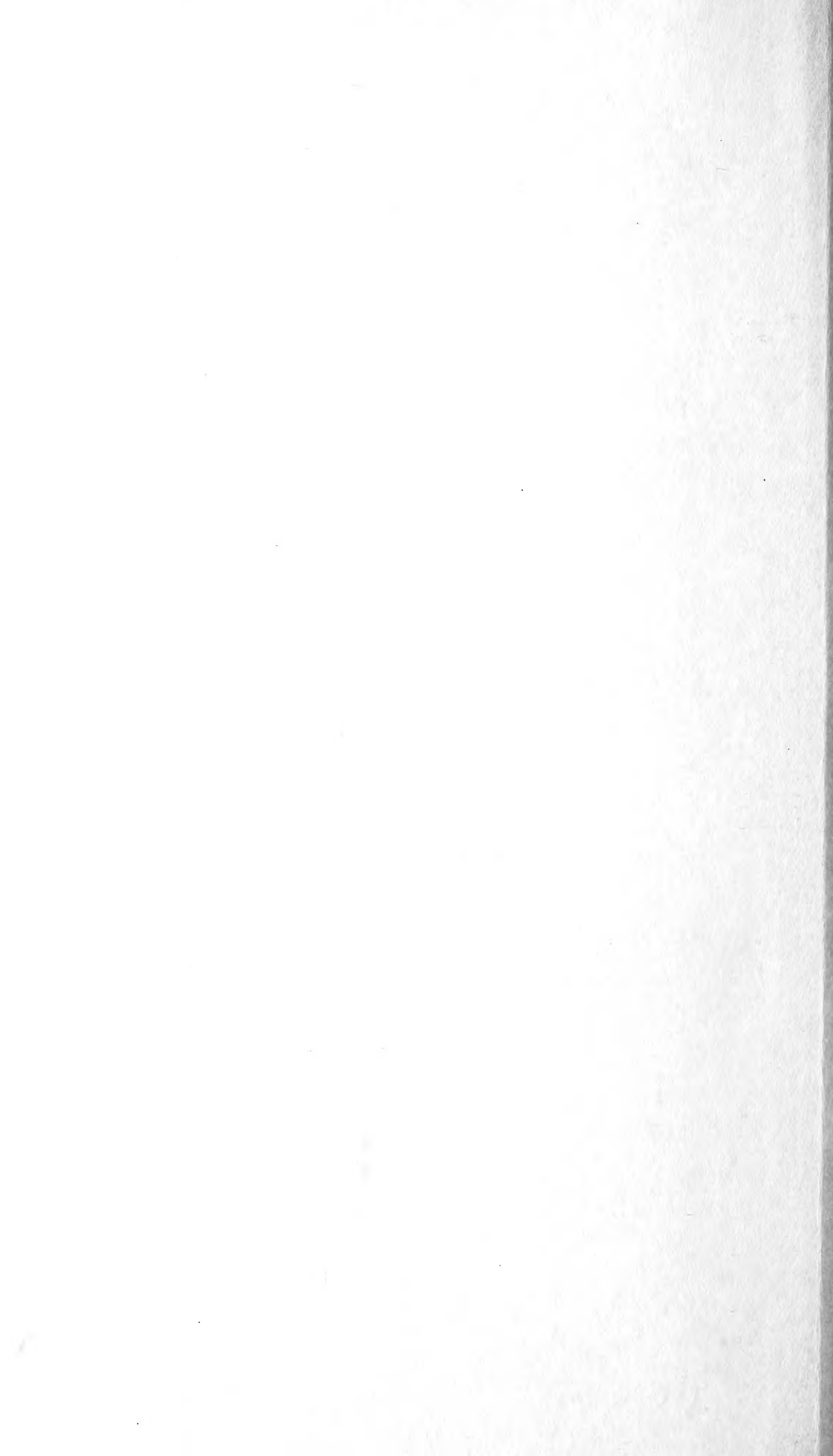
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